Government of Karnataka
Department of Technical Education
Bengaluru

	Course Title: Data Structures using C		
	Scheme (L:T:P) : **4:0:0**	Total Contact Hours: **52**	Course Code: **15CS41T**
	Type of Course: **Lectures, Self Study & Student Activity.**	Credit **:04**	Core/ Elective: **Core**
CIE- 25 Marks			SEE- 100 Marks

Prerequisites:

Knowledge of C programming.

Course Objectives

To study the concepts of derived data types and data structures such as linked list, stack, queue, sorting and searching techniques.

Course Outcome

On successful completion of the course, the students will be able to attain below Course Outcome (CO):

Course outcome		CL	Linked PO	Teaching Hours
CO1	Illustrate the concepts of pointers and dynamic memory allocation with programs.	*U,A*	**1 to 4 and 7 to 10**	**08**
CO2	Discuss different types of file operations and command line arguments to develop simple program. of lists and apply various operations on them.	*U,A*	**1 to 4 and 7 to 10**	**06**
CO3	Describe data structures and different types of linked list	*U,A*	**1 to 4 and 7 to 10**	**10**
CO4	Construct stacks and queues using the concept of Arrays and Linked lists.	*U,A*	**1 to 4 and 7 to 10**	**10**
CO5	Illustrate the use of Binary Trees and its operations.	*U,A*	**1 to 4 and 7 to 10**	**08**
CO6	Explain sorting and searching techniques with associated programs.	*U,A*	**1 to 4 and 7 to 10**	**10**
		Total sessions		**52**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

Course-PO Attainment Matrix

Course	**Programme Outcomes**									
	1	2	3	4	5	6	7	8	9	10

Data Structures using C	**3**	**3**	**3**	**3**	**-**	**-**	**3**	**3**	**3**	**3**

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.

If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3

If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2

If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1

If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

Course Content and Blue Print of Marks for SEE

Unit No	Unit Name	Hour	Questions to be set for SEE			Marks Weightage	Marks Weightage (%)
			R	U	A	A	
I	Pointers and Dynamic Memory allocation	**08**	-	07	15	22	15.39
II	Files	**06**	-	07	10	17	11.53
III	Introduction to data structures & Linked lists	**10**	05	07	16	28	19.23
IV	Stack & Queues	**10**	-	08	20	28	19.23
V	Trees	**08**	-	07	15	22	15.39
VI	Sorting, Searching and Application of Data Structures	**10**	-	08	20	28	19.23
	Total	**52**	**05**	**44**	**96**	**145**	**100**

UNIT I : Pointers and Dynamic Memory allocation 08 Hrs

Pointers - Concept of pointers, Declaring and initializing pointers, Accessing variables using pointers, Pointer arithmetic, Pointers and arrays, Pointers and character strings, Pointers and functions, Pointer as a function argument, Pointers to function, Pointers and structures.

Dynamic Memory allocation – Introduction, Dynamic memory allocation, Allocating a block of memory: Malloc, Allocating multiple blocks of memory: Calloc, Releasing the used space: Free Altering the size of memory: Realloc

UNIT II: Files 06 Hrs

Introduction, Defining and opening a file, closing a file, Input / Output operations on files, Error handling during I/O operations, Random Access to files, Command line arguments

UNIT III: Introduction to data structures & Linked lists 10 Hrs

Introduction to data structures – Introduction, Characteristics, Types of data structures, data structure operations.

Linked lists – Introduction, Basic concept, linked list implementation, Types of linked lists, Circular linked list (no implementation), doubly linked list (no implementation).

UNIT IV: Stack & Queues 10 Hrs

Stack – Introduction, Stacks, Stack operations, stack implementations.

Queues – Introduction, Basic concept, queue operations, queue implementations, circular queue (no implementation), priority queues (no implementation), double ended queues (no implementation).

UNIT V: Tree 08 Hrs

Introduction, Basic concept, Binary tree, Binary tree representation, Binary tree traversal.

UNIT VI: Sorting, Searching and Application of Data Structures 08 Hrs

Sorting – Introduction, sorting techniques – selection sort, insertion sort, bubble sort, quick sort (no implementation), merge sort (no implementation).

Searching – Introduction, Linear search, binary search.

Application of data structure – Introduction, Applications of stack, Infix to postfix conversion, Evaluation of a postfix expression, Recursion, factorial, GCD, List application of queues, linked lists and trees.

Text books

1. Programming with ANSI-C, E. Balaguruswamy, Sixth Edition, Tata Mcgraw Hill *for **Unit I** and **II***
2. Data Structures using C, E. Balagurusamy, Tata Mcgraw Hill *for **Unit III,IV,V,VI***

References

1. Programming with ANSI & Turbo C, Ashok Kamthane, Second Edition, Pearson Education.
2. Let us C, Yashavant P Kanetkar, 14th Edition, BPB publication, **ISBN** 9788183331630
3. Data structures A Programming Approach with C Second Edition , PHI publication, Dharmender Singh Kushwaha, Arun Kumar Misra.
4. Programming in C and Data Structure, P.B.Kotur, Sapna Book house
5. http://spoken-tutorial.org/tutorial-search/?search_foss=C+and+Cpp&search_language=English
6. http://www.tutorialspoint.com/cprogramming/
7. http://www.indiabix.com/online-test/c-programming-test/

Suggested list of student activities

Note: the following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course coordinator and programme coordinator.
2. Each group should conduct different activity and no repeating should occur

1	Implementation of Double linked list and circular linked list
2	Implementation of Circular Queue
3	Implementation of function pointers
4	Design and implement the Applications of Stack
5	Quiz

Course Delivery

The course will be delivered through lectures and Power point presentations/ Video

Course Assessment and Evaluation Scheme

Method	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct Assessment	CIE	IA	Students	Three IA tests (Average of three tests will be computed)	20	Blue books	1 to 6
				Student activities	05	Report	1 to 6
				Total	**25**		
	SEE	End Exam		**End of the course**	**100**	Answer scripts at BTE	1 to 6
Indirect Assessment			Students	Middle of the course		Feedback forms	1, 2, 3 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1 to 6 Effectiveness of Delivery of instructions & Assessment Methods

Note: I.A. test shall be conducted for 20 marks. Average marks of three tests shall be rounded off to the next higher digit.

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No	Bloom's Category	%
1	Remembrance	10
2	Understanding	50
3	Application	40

***Note to IA verifier**: The following documents to be verified by CIE verifier at the end of semester*

1. Blue books (20 marks)
2. Student suggested activities report for 5 marks
3. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

FORMAT OF I A TEST QUESTION PAPER (CIE)

Test/Date and Time	Semester/year	Course/Course Code	Max Marks
Ex: I test/6 th weak of sem 10-11 Am	I/II SEM		20
	Year:		

Name of Course coordinator : Units:__
CO's:____

Question no	Question	MARKS	CL	CO	PO
1					
2					
3					
4					

Note: Internal choice may be given in each CO at the same cognitive level (CL).

MODEL QUESTION PAPER (CIE)

Test/Date and Time	Semester/year	Course/Course Code	Max Marks
Ex: I test/6 th week of sem 10-11 AM	IV SEM	Data Structures Using C	20
	Year: 2015-16	Course code:15CS41T	

Name of Course coordinator :
Units:1,2 Co: 1,2

Note: Answer all questions

Question no	Question	CL	CO	PO
1	How is a pointer to an array different from an array of pointers? Explain with an example (5)	U	1	1,2
2	Write C program to swap two numbers using pointers. (5) OR Give the difference between call-by-value and call-by-reference methods.	A	1	1,2
3	Explain different file accessing modes. OR With an example, explain how to handle errors during I/O operations	U	2	1,2
4	Write a program to copy contents of one file to another.	A	2	1,2

.

Format for Student Activity Assessment

DIMENSION	Unsatisfactory 1	Developing 2	Satisfactory 3	Good 4	Exemplary 5	Score
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collects some basic information; refer to the topic	Collects relevant information; concerned to the topic	Collects a great deal of information; all refer to the topic	3
Fulfill team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs all duties	Performs all duties of assigned team roles with presentation	4
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Does the assigned job without having to be reminded.	Always does the assigned work without having to be reminded and on given time frame	3
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Listens, but sometimes talk too much	Listens and contributes to the relevant topic	Listens and contributes precisely to the relevant topic and exhibit leadership qualities	3
					TOTAL	**13/4=3.25=4**

All student activities should be done in a group of 4-5 students with a team leader.

MODEL QUESTION PAPER Code: **15CS41T**

Diploma in Computer science & Engineering

IV- Semester

Course Title: Data Structures Using C

Time: **3 Hours** Max Marks**: 100**

PART-A

Answer any SIX questions. Each carries 5 marks. 5X6=30 Marks

1. Explain fseek() and ftell() functions.
2. Define Data structures. Mention different types of data structures.
3. Write the advantages and disadvantages of a Linked List.
4. Define stack. Explain how to represent a stack in C.
5. Write a note on dequeue.
6. Define the following a)internal node b) sibling c) degree of the tree d) depth of a tree e) path
7. Define the following a) root node b) leaf node c) level of tree d) child node e)parent node.
8. Write a recursive C program to find the GCD of two numbers.
9. List the application of Linked List.

PART-B

Answer any SEVEN full questions each carries 10 marks. 10X7=70 Marks

1. a)Define Pointer. Write its advantages and disadvantages.
   b)Explain pointer to structure with example.
2. List and explain Dynamic Memory allocation functions in C.
3. Write a program to copy contents of one file to another. Use command line arguments to specify the file names.
4. Write the c functions to perform insert at front and delete operations on Singly Linked List.
5. Define Circular Linked List. Give its c representation.
6. Write C program to implement push and pop operation of stack.
7. Define Priority queue. Write the C implementation Priority Queue.
8. Construct a binary tree for the following values and traverse the tree in preorder, inorder and postorder:
   46, 76, 36, 26, 16, 56, 96
9. Write a c program to implement Binary Search.
10. List the application of stack. Write an algorithm to convert infix to postfix expression.

* * *

MODEL QUESTION BANK

Diploma in Computer Science & Engineering

IV Semester

Course Title: Data Structures Using C

CO	Question	CL	Marks
I	Define Pointer. Write its advantages and disadvantages.	A	05
	Explain the declaration and initialization of pointer variable with an example.	U	
	Discuss the use of address operator and indirection operator with pointers.	U	
	Explain the array of pointers with an example.	U	
	Give the difference between call-by-value and call-by-reference methods.	U	
	Differentiate between pointers as function arguments and pointers to function.	A	
	How is a pointer to an array different from an array of pointers? Explain with an example	U	
	Explain pointers and array using example.	U	
	Explain how an array can be passed to a function?	A	
	Explain in brief the different parameter passing mechanisms.	A	
	Explain pointer to structure with example.	A	
	Write C program to swap two numbers using pointers.	A	
	Define Dynamic Programming in C and its advantages.	A	
	Give the difference between malloc() and calloc() functions.	U	
	Explain free(). What are its advantages?	U	
	Explain character pointer as an argument to a function with an example.	U	10
	Discuss pointer as a function argument. With an example explain call-by-reference method.	A	
	With an illustration program explain pointers to structures.	A	
	With an illustration program explain pointers to arrays.	A	
	Write a program to illustrate pointer arithmetic's.	A	
	Write C program to compare 2 strings to check whether they are equal or not using pointer.	A	
	What are the advantages of pointer? Write a program using pointers to compute the sum of all elements stored in an array.	A	
	Explain Dynamic Memory allocation in C using memory map.	A	
	List and explain Dynamic Memory allocation functions in C.	A	
	Writ a program to illustrate memory allocation using malloc() function.	A	
	Writ a program to illustrate memory allocation using calloc() function.	A	
	Writ a program to illustrate reallocation of memory using realloc() function.	A	
	How are static and dynamic memory allocations different? Write a program to sort 10 numbers using malloc().	A	
	What is a file? Explain how to open and close a file.	U	
	Distinguish between the following functions: i. getc and getchar	R	

II	ii. printf and fprintf		05
	With an example, explain how to handle errors during I/O operations.	**U**	
	Explain fseek() and ftell() functions.	**U**	
	Differentiate between following functions: i. feof and ferror ii. printf and fprintf **iii.** getc and getw	**U**	10
	Write a program to copy contents of one file to another.	**A**	
	Use command line arguments to specify the file names.	**U**	
	List and explain Input /Output functions of file.	**U**	
	Explain different file accessing modes.	**U**	
III	Define Data structures. Mention different types of data structures.	**R**	05
	What are primitive data types? Explain	**U**	
	Distinguish between linear and non-linear data structures.	**R**	
	Explain data structure operations.	**U**	
	Define Linked List. Mention the different types of Linked list.	**R**	
	Explain the representation of a Linked List in memory with a help of an illustration.	**U**	
	Explain the operations that are performed on Singly Linked List.	**U**	
	Write the advantages and disadvantages of a Linked List.	**U**	
	Compare Singly Linked List with Circular Linked List.	**U**	
	Compare Singly Linked List with Doubly Linked List.	**U**	
	Write the c functions to perform insert at end and display operations on Singly Linked List.	**A**	10
	Write the c functions to perform insert at front and delete operations on Singly Linked List.	**A**	
	Write the c functions to perform insert at a given position operations on Singly Linked List.	**A**	
	Define Circular Linked List. Give its C representation.	**A**	
	Define Doubly Linked List. Give its C representation.	**A**	
IV	Define stack. Explain how to represent a stack in C.	**U**	05
	Explain push and pop operations of stack.	**A**	
	Define queue. Explain the sequential representation of queue	**U**	
	Write a note on queue.	**U**	
	Define Priority queue. Differentiate ascending ord descending priori queue	**A**	
	Write C program to implement push and pop operation of stack.	**A**	10
	Define queue. List and explain types of queues.	**U**	
	Write a program to implement queue in C.	**A**	
	Write an algorithm to perform Queue insertion and deletion.	**A**	
	Define Circular queue. Write the C implementation Circular Queue.	**A**	
	Define Priority queue. Write the C implementation Priority Queue.	**A**	
	Define Double Ended queue. Write the C implementation Double Ended Queue double.	**A**	
	Define Binary tree. Explain the method of representing binary trees.	**U**	

V	Explain with an example how to perform deletion	A	05
	operation on a binary tree.		
	Define the following a) root node b) leaf node c) level of tree d) child node e)parent node.	R	
	Define the following a)internal node b) sibling c) degree of the tree d) depth of a tree e)path	R	
	Construct a binary tree for the following data, 16, 3, 8, 11, 1, 6, 9, 14, 2, 10, 17, 7 13	A	
	Explain Strictly Binary tree and Complete Binary Tree, with an example.	A	
	Explain Perfect Binary tree and Balanced Binary Tree, with an example.	A	
	What is binary tree traversing? Explain type of traversal with example.	A	10
	Develop a recursive algorithm to traverse a binary tree in the following order i.e Inorder, Preorder and Post order.	A	
	Construct a binary tree for the following values and traverse the tree in preorder, inorder and postorder: 46, 76, 36, 26, 16, 56, 96	A	
	Define tree traversal. List and explain types of tree traversal.	A	
VI	Explain with an example the working of the merge sort.	A	05
	Explain the concept of straight selection sort.	U	
	Write a note on simple insertion sort.	U	
	Explain Quick sort with example.	A	
	Explain Bubble sort with an example.	A	
	Explain the concept of Linear Search.	U	
	Explain the concept of Binary Search.	U	
	Write a recursive C program to find the GCD of two numbers.	A	
	Write a recursive C program to find the Factorial of a number.	A	
	What is recursion? Explain the properties of recursive definition	U	
	List the application of Queues.	A	
	List the application of Linked List.	A	
	List the application of Trees.	A	
	Develop a C program to implement bubble sort method.	A	10
	Write a program to implement Insertion sort.	A	
	Write a program to implement Selection sort.	A	
	Write a c program to implement Linear Search.	A	
	Write a c program to implement Binary Search.	A	
	List the application of stack. Write an algorithm to convert infix to postfix expression.	A	
	Give the postfix and prefix forms for the following expression. (a / b) * c – (d + g) $ f	U	
	Give the postfix and prefix forms for the following expression. a $ b * c – d + e / f / (g + h)	U	
	Evaluate the given postfix expression with the stack content, **3+4*2/(9-5) ^ 4**	U	

Government of Karnataka
Department of Technical Education
Bengaluru

	Course Title: **OOP With Java**		
	Scheme (L:T:P) : **4:0:0**	Total Contact Hours: **52**	Course Code: **15CS42T**
	Type of Course: **Lectures, Self Study & Student Activity.**	Credit **:04**	Core/ Elective: **Core**
CIE- 25 Marks			SEE- 100 Marks

Prerequisites

Knowledge of programming concepts.

Course Objectives

To learn and implement object-oriented features such as encapsulation, inheritance and polymorphism along with error-handling techniques using Java.

Course Outcome

On successful completion of the course, the students will be able to attain below Course Outcome (CO):

Course outcome		**CL**	**Linked PO**	**Teaching Hours**
CO1	Discuss the OOP's concept and Apply the concepts to design, implement, compile, test and execute simple Java programs.	***U, A***	**2,3,4,8,10**	**8**
CO2	Explain the concepts related to classes and Use built-in methods of String and String Buffer classes.	***U, A***	**2,3,4,8,10**	**14**
CO3	Define Inheritance and Discover Interface with programs	***U, A***	**2,3,4,8,10**	**6**
CO4	Illustrate Packages and articulate with simple programs	***U, A***	**2,3,4,8,10**	**8**
CO5	Illustrate multithreading concepts by experimenting with programs	***U, A***	**2,3,4,8,10**	**8**
CO6	Interpret different types of Exceptions by solving programs.	***U, A***	**2,3,4,8,10**	**8**
		Total sessions		**52**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

Course-PO Attainment Matrix

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
OOP With Java	**-**	**3**	**3**	**3**	**-**	**-**	**-**	**3**	**-**	**3**

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.

If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3

If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2

If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1

If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

Course Content and Blue Print of Marks for SEE

Unit No	Unit Name	Hour	Questions to be set for SEE			Marks Weightage	Marks Weightage (%)
			R	U	A	A	
I	Introduction of Java	**8**	5	10	7	22	15.38
II	Classes, Objects and Methods; Strings and String Buffer Classes	**14**	-	18	10	38	27.00
III	Interface: Multiple Inheritance	**6**	-	6	10	16	11.53
IV	Packages: Putting Classes Together	**8**	-	13	10	23	15.38
V	Multithreaded Programming	**8**	-	13	10	23	15.38
VI	Managing Errors and Exceptions	**8**	-	13	10	23	15.38
	Total	**52**	**5**	**73**	**57**	**145**	**100**

UNIT I: Introduction of Java 06 Hrs

Fundamentals of Object Oriented Programming- Introduction, Object oriented Paradigm, Basic Concepts of OOP, Benefits of OOP, Applications of OOP.

Java Evolution - Java history, Java Features, How Java Differs from C and C++, Java and World Wide Web, Java Environment, Simple Java Program, An Application with Two Classes, Java Program Structure, Java Tokens, Java Statements, Implementing a Java Program, Java Virtual Machine, Command Line Arguments, Programming Style, Constants, Variables, Data Types, Scope of Variables, Symbolic Constants, Type Casting, Standard Default Values, Special Operators, Mathematical Functions, Labelled Loops (break & Continue) Operators and Expressions, Decision Making, Branching & Looping.

UNIT II: Classes, Objects and Methods; Strings and String Buffer Classes 14Hrs

Classes, Objects and Methods - Introduction, Defining a Class, Fields Declaration, Methods Declaration, Creating Objects, Accessing Class Members, Constructors, Methods Overloading, Static Members, Nesting of Methods, Inheritance: Extending a Class, Overriding Methods, Final Variables and Methods, Final Classes, Finalize Methods, Abstract Methods and Classes, Methods with Variable arguments (Varargs),Visibility Control.
Strings and String Buffer Classes - Strings, Vectors, Wrapper classes, Enumerated Types, Annotations.

UNIT III: Interface: Multiple Inheritance 10Hrs

Introduction, Defining Interfaces, Extending Interfaces, Implementing Interfaces, Accessing Interface Variables.

UNIT IV: Packages: Putting Classes Together 08Hrs

Introduction, Java API Packages, Using System Packages, Naming Conventions, Creating Packages, Accessing a Package, Using a Package, Adding a Class to a Package, Hiding Classes, Static Import.

UNIT V: Multithreaded Programming 06 Hrs

Introduction, Creating Threads, Extending the Thread Class, Stopping and Blocking a Thread, Life Cycle of a Thread, Using Thread Methods, Thread Exceptions, Thread Priority, Synchronization, Implementing the 'Runnable' Interface, Inter-thread Communication.

UNIT VI: Managing Errors and Exceptions 08 Hrs

Introduction, Types of Errors, Exceptions, Syntax of Exception Handling Code, Multiple Catch Statements, Using Finally Statement, Throwing Our Own Exceptions.

Text books

Programming with Java, 6th edition, Balagurusamy, Mc Graw Hill, ISBN 13- 9789351343202 ISB 10- 9351343200

References

1. Complete Reference Java J2se, Herbert Schildt, Tata McGraw Hill, ISBN 9780070598782
2. Java 6 Programming – Black Book Wiley India Pvt ltd
3. Programming in JAVA2 – Dr. K. Somasundaram Jaico Publish
4. Programming in JAVA – S.S. Khandare – S. Chand Publish

E-learning resources

http://www.Javatpoint.com/Java-tutorial
http://www.tutorialspoint.com/Java/
http://www.indiabix.com/technical/core-Java/

Suggested list of student activities

Note: The following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned Course coordinator and Program Coordinator
2. Each group should conduct different activity and no repeating should occur.

- Hotel Management System, E-Bill Board, Online insurance, Online Mobile, Contributor, Online Restaurant, Public Distribution System, SECURE E-banking security,

District medical data center, Visit different sites relevant to topics. Listen to the lectures and submit a handwritten report, etc.

Course Delivery

The course will be delivered through lectures and Power point presentations/ Video

Course Assessment and Evaluation Scheme

Method	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct Assessment	CIE	IA	Students	Three IA tests (Average of three tests will be computed)	20	Blue books	1 to 6
				Student activities	05	Activity Reports	1 to 6
				Total	**25**		
	SEE	End Exam		**End of the course**	**100**	Answer scripts at BTE	1 to 6
Indirect Assessment	Student Feedback on course		Students	Middle of the course		Feedback forms	1 to 3 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1 to 6 Effectiveness of Delivery of instructions & Assessment Methods

<u>**Note:**</u> I.A. test shall be conducted for 20 marks. Average marks of three tests shall be rounded off to the next higher digit.

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No	**Bloom's Category**	**%**
1	Remembrance	10
2	Understanding	30
3	Application	60

***Note to IA verifier**: The following documents to be verified by CIE verifier at the end of semester*

1. Blue books (20 marks)
2. Student suggested activities report for 5 marks
3. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

FORMAT OF I A TEST QUESTION PAPER (CIE)

Test/Date and Time	Semester/year	Course/Course Code	Max Marks
Ex: I test/6 th weak of sem 10-11 Am	I/II SEM		20
	Year:		
Name of Course coordinator : CO's:_____			Units:__

Question no	Question	MARKS	CL	CO	PO
1					
2					
3					
4					

Note: Internal choice may be given in each CO at the same cognitive level (CL).

MODEL QUESTION PAPER (CIE)

Test/Date and Time	Semester/year	Course/Course Code	Max Marks
Ex: I test/6 th week of sem 10-11 AM	IV SEM	OOP With Java	20
	Year: 2015-16	Course code:15CS42T	
Name of Course coordinator : Units:1,2 Co: 1,2 **Note: Answer all questions**			

Question no	Question	CL	CO	PO
1	Define the following OOPS concepts (5) a. Inheritance b. Polymorphism	U	1	1,2
2	Illustrate Java communication with a web page (5)	A	1	1,2
3	Explain any five string buffer methods (5)	U	2	1,2
4	Write a Java Programme to illustrate to illustrate vectors. (5)		2	1,2

Format for Student Activity Assessment

DIMENSION	Unsatisfactory 1	Developing 2	Satisfactory 3	Good 4	Exemplary 5	Score
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collects some basic information; refer to the topic	Collects relevant information; concerned to the topic	Collects a great deal of information; all refer to the topic	3
Fulfill team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs all duties	Performs all duties of assigned team roles with presentation	4
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Does the assigned job without having to be reminded.	Always does the assigned work without having to be reminded and on given time frame	3
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Listens, but sometimes talk too much	Listens and contributes to the relevant topic	Listens and contributes precisely to the relevant topic and exhibit leadership qualities	3
					TOTAL	**13/4=3.25=4**

All student activities should be done in a group of 4-5 students with a team leader.

MODEL QUESTION PAPER Code: **15CS42T**

Diploma in Computer science & Engineering

IV- Semester

Course Title: OOP With Java Programming

Time: **3 Hours** Max Marks**: 100**

PART-A

Answer any SIX questions. Each carries 5 marks. 5X6=30 Marks

1. List any five major differences between C++ and Java.
2. Distinguish between Inheritance &Polymorphism.
3. Define constructors. List its special properties.
4. Compare arrays and vectors.
5. Explain how to add a class to a package with an example.
6. Explain the various forms of interface implementation.
7. Explain yield(),sleep() and stop() methods of a thread.
8. List the Java exceptions.
9. Illustrate with an example nested try statement.

.

PART-B

Answer any SEVEN full questions each carries 10 marks. 10X7=70 Marks

1. Explain the features of Java.
2. Explain class definition with fields and method declaration.
3. Define static member. Write a program to illustrate static members.
4. Define inheritance. Explain different forms of inheritance.
5. Write a program to implement interfaces
6. Explain Java API packages
7. Write a Package program to demonstrate basic arithmetic operators
8. Explain the life cycle of thread.
9. Explain with an example thread creation by implementing runnable Interface..
10. Write a program for throwing your own exception.

* * *

MODEL QUESTION BANK

Diploma in Computer Science & Engineering

IV Semester

Course Title: OOP with Java

CO	Question	CL	Marks
I	Give the definition of object oriented programming and how it is different from procedure-oriented programming	U	05
	Explain the organization of data and methods in an object oriented programming.	U	
	List the unique advantages of an object oriented programming	U	
	Give the definition of object and classes. Explain representation of an object with an example.	U	
	Define the following (i) Data abstraction (ii) Data encapsulation	U	
	Define the following OOPS concepts b. Inheritance c. Polymorphism	U	
	Distinguish between objects and classes	U	
	Distinguish between Data abstraction & Data encapsulation	U	
	Distinguish between Inheritance &Polymorphism	U	
	Distinguish between Dynamic binding & message passing.	U	
	Explain Dynamic binding & message passing	U	
	List any five advantages of OOP	A	
	List any five areas of application of OOPS technology	A	
	Java is platform independent language. Justify	U	
	Discuss how Java is more secured than other language	U	
	List any features of Java.	A	
	List any five major differences between C and Java.	U	
	List any five major differences between C++ and Java	U	
	Discuss the contributions of Java to the world wide web.	A	
	Illustrate Java communication with a web page	A	
	Explain the process of building and running Java application programs	A	
	Explain Java run time environment	U	
	Write a simple Java program and explain	A	
	Write a simple Java program to illustrate the use of mathematical functions	A	
	List the different sections of Java program structure	U	
I	List the advantages of OOPS.	U	
	Discuss OOPs areas of application.	A	
	Define the following. a. Data abstraction. b. Data encapsulation. c. Inheritance.	R	
	Define the following.	R	

	a. Polymorphism. b. Dynamic binding. c. Message Communication.		**10**
	List and explain Java features.	**A**	
	Discuss how Java differs from C & C++.	**U**	
	Explain the contributions of Java to the world wide web. With a figure illustrate how Java communicates with a web page.	**U**	
	Write a Java program to illustrate an application with two classes	**A**	
	Explain Java program structure with a diagram	**U**	
	Explain the features of Java.	**A**	
	List and explain Java statements.	**U**	
	Describe in detail the steps involved in implementing a standalone program	**U**	
	Explain Java virtual machine.	**U**	
	Discuss command line arguments in Java with an example program	**U**	
	With general syntax explain formatted input-output statements. Give example for each.	**U**	
II	Define constructors. List its special properties	**U**	**05**
	Define object. Explain object creation from a class	**U**	
	Define multilevel inheritance with an example	**U**	
	Define hierarchical inheritance with an example	**U**	
	Describe the syntax of single inheritance in Java	**U**	
	Compare and contrast overloading and overriding methods	**U**	
	Define subclass constructor and the use of keyword super	**U**	
	Define final classes and finalize methods	**U**	
	Define abstract methods and classes	**U**	
	Write the visibility control of Java classes.	**U**	
	Compare arrays and vectors	**U**	
	Explain any five string methods.	**U**	
	Explain any five string buffer methods	**U**	
	Explain the use of wrapper class in Java	**U**	
	Differentiate between interfaces and classes	**U**	
	Explain class definition with fields and methods declaration	**U**	**10**
	Discuss object creation in Java.	**U**	
	With an example explain accessing of class members	**A**	
	Write a program to illustrate constructor	**A**	
	Discuss the process of method overloading	**U**	
	Define static member. Write a program to illustrate static members.	**A**	
	Write a program to illustrate method overloading	**A**	
	Write a program to sort N elements of an array.	**A**	
	Write a program to illustrate vectors.	**A**	
	Write a program to illustrate wrapper classes	**A**	
III	Differentiate between interfaces and classes	**U**	**05**
	Write the general syntax of creating an interface and explain	**U**	
	Explain the various forms of interface implementation	**U**	
	Explain how to access interface variables with an example		
	Write the similarities between class and interfaces	**U**	

	Explain how to extend interfaces with an example	**A**	**10**
	With an example explain how to support multiple inheritance	**A**	
	Write a program to implement interfaces.	**A**	
IV	Define a package. List Java API packages	**U**	**05**
	How to create and implement a package	**U**	
	Explain the naming convention of a package with an example	**U**	
	Explain how to access packages with an example	**A**	
	Explain how to add a class to a package with an example	**A**	
	Discuss the various levels of access protection available for packages	**U**	
	Explain how to hide classes in a package	**U**	
	Explain static import and how is it useful	**U**	
	Explain Java API packages.	**U**	**10**
	Write a program to add a class to a package.	**A**	
	Write a Package program to demonstrate basic arithmetic operators	**A**	
	Write a program to use inbuilt packages to calculate square root of a number	**A**	
V	Define thread.	**R**	**05**
	Differentiate between multithreading and multitasking	**U**	
	Explain how to create thread by extending Thread class with an example	**U**	
	Explain how to stop and block a thread	**U**	
	Describe complete life cycle of a thread	**U**	
	Explain yield(),sleep() and stop() methods of a thread	**U**	
	Write a note on thread exceptions	**U**	
	How do we set priorities for threads?	**U**	
	How to create a runable thread?	**U**	
	Define synchronization? When do we use it	**U**	
	Differentiate between suspending and stopping a thread	**U**	
	Explain the different methods of creating threads	**U**	**10**
	Write a program to create a threads using a thread class	**A**	
	Explain thread creation by implementing runnable interface with an example	**A**	
	Write a note on inter- thread communication	**U**	
	Write a program to create threads by extending thread class	**A**	
	Write a program to create threads by implementing runnable interface	**A**	
	Write a program to set priorities for threads	**A**	
	Write a program to implement yield(),sleep() and stop() methods of a thread	**A**	
	Explain the life cycle of thread.	**U**	
VI	Define exception and explain its purpose	**U**	**05**
	Explain types of errors with suitable examples	**U**	
	List the compile time errors	**U**	
	List the run time errors	**U**	
	Illustrate compile time errors with an example	**A**	
	Illustrate run time errors with an example	**A**	
	Explain the syntax of exception handling	**U**	
	Write a program to illustrate nested try statements	**A**	

	Explain nested try statements with an example	**A**	
	Explain multiple catch blocks with an example	**A**	
	How many catch blocks can be used with one try block.,explain	**U**	
	Create a try block that is likely to generate three types of exception and then incorporate necessary catch block to catch and handle them appropriately	**A**	
	Explain the finally block. When and how it is used with a suitable example	**U**	
	Explain how exception handling mechanism can be used for debugging a program	**A**	
	Define an exception called “No MatchException”that is thrown when a string is not equal to “ Ïndia”.Write a program that uses this exception	**A**	
	Explain how to throw our own exceptions	**U**	
	Write a program to implement “ Throwing our own exceptions”	**A**	
	Write a program to illustrate multiple catch blocks	**A**	**10**
	Write a program to use multiple catch block statement.	**A**	
	Write a program to illustrate nested try statement.	**A**	
	Write a program for throwing your own exception	**A**	

* * *

Government of Karnataka
Department of Technical Education
Bengaluru

	Course Title: Operating System		
	Scheme (L:T:P) : **4:0:0**	Total Contact Hours: **52**	Course Code: **15CS43T**
	Type of Course: **Lectures, Self Study & Student Activity.**	Credit **:04**	Core/ Elective: **Core**
CIE- 25 Marks			SEE- 100 Marks

Prerequisites

Basic Computer Concepts

Course Objectives

1. Understand the services of an operating system provides to its users and system itself.
2. Apply various CPU scheduling algorithms and recognize the classic synchronization problems.
3. Compare methods for handling deadlocks and apply various memory management techniques.
4. Describe file systems.

Course Outcome

On successful completion of the course, the students will be able to attain below Course Outcome (CO):

Course outcome		**CL**	**Linked PO**	**Teaching Hours**
CO1	Describe operating system operations and operating system structures.	*U*	**1,2,9,10**	**08**
CO2	Understand process management and apply process scheduling algorithms	*U, A*	**2,3,9,10**	**12**
CO3	Recognize Synchronization and discover the methods for handling deadlocks.	*U, A*	**2,3,9,10**	**08**
CO4	Explain the memory management techniques.	*U, A*	**2,3,9,10**	**08**
CO5	Discover the concepts related to virtual memory management	*U, A*	**2,3,9,10**	**08**
CO6	Identify file systems concepts.	*U, A*	**2,3,9,10**	**08**
		Total sessions		**52**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

Course-PO Attainment Matrix

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
Operating System	**-**	**3**	**3**	**-**	**-**	**-**	**-**	**-**	**3**	**3**

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.

If >40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3

If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2

If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1

If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

Course Content and Blue Print of Marks for SEE

Unit No	Unit Name	Hour	Questions to be set for SEE			Marks Weightage	Marks Weightage (%)
			R	U	A	A	
I	Introduction to operating systems	**8**	-	22	-	22	15.38
II	Process management	**12**	-	22	10	32	23.10
III	Synchronization & Deadlocks	**08**	-	12	10	22	15.38
IV	Memory management	**08**	-	14	10	24	15.38
V	Virtual memory management	**08**	-	13	10	23	15.38
VI	File system	**08**	-	12	10	22	15.38
	Total	**52**	**-**	**95**	**50**	**145**	**100**

UNIT I : Introduction to Operating System 08 Hrs

What operating systems do? Computer System architecture, Operating System structure, Operating System operations, Process management, Memory management, Storage management, Protection and security, Distributed system, Special-purpose systems, Computing environments, Open-source Operating Systems..

UNIT II: Process Management 12 Hrs

Process concept, Process scheduling, Operations on processes, Inter-process communication, Process Scheduling: Basic concepts, Scheduling criteria, Scheduling algorithms.

UNIT III: Synchronization & Deadlocks 08 Hrs

Synchronization – Background, The critical section management and semaphores (Concepts only)

Deadlocks- System model, Deadlock characterization, Methods for handling deadlocks, Deadlock prevention, Deadlock avoidance, Deadlock detection, Recovery from deadlock

UNIT IV: Memory Management Strategies 08 Hrs

Background, Swapping, Contiguous memory allocation, Paging, Structure of page table, Segmentation

UNIT V: Virtual Memory Management 08 Hrs

Background, Demand paging, Copy-on-write, Page replacement, Allocation of frames .

UNIT VI: File System 08 Hrs

File concept, Access methods, Directory and disk structure, File system mounting, File Sharing , Protection.

Text books

1. **Operating System Principles** – Abraham Silberschatz, Peter Baer Galvin, Greg Gagne, 8th edition, Wiley-India. (Chapters-1, 3, 5, 6, 7, 8, 9, 10 and 11)
   ISBN- 9788126520510

References

1. Operating Systems, I. Chandra Mohan, PHI, 2013, ISBN – 9788120347267
2. http://www.tutorialspoint.com/operating_system/
3. http://courses.cs.vt.edu/~csonline/OS/Lessons/index.html
4. http://www.nptel.ac.in

Suggested list of student activities

Note: the following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course coordinator and programme coordinator.
2. Each group should conduct different activity and no repeating should occur

1	How to install and Uninstall an Operating System on a New Computer
2	How to Remove a Second Operating System from a PC
3	A Survey of recent Operating System
4	Case study on real time deadlock situation
5	A case study on real time process synchronization
6	Comparison of OS working in single core and multi core environment
7	Comparison of 32 bits and 64 bits OS
8	Operating system is responsible for following activities in connection with management of memory: • Allocation and de allocation of memory as and when needed • Keeping track of used and unused memory space. • Deciding what process to be loaded into memory in case space becomes available.
9	For secondary space management: • Swap space and free space management • Disk scheduling

	- Allocating space to the data and programs onto the secondary storage device.
10	For process management: - Creation, deletion of both user and system process. - Handling process synchronization. - Deadlock handling.

Course Delivery

The course will be delivered through lectures and Power point presentations/ Video

Course Assessment and Evaluation Scheme

Method	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct Assessment	CIE	IA	Students	Three IA tests (Average of three tests will be computed)	20	Blue books	1,2,3,4
				Student activities	05	Report	1,2,3,4
				Total	**25**		
	SEE	End Exam		**End of the course**	**100**	Answer scripts at BTE	1,2,3,4
Indirect Assessment	Student Feedback on course		Students	Middle of the course		Feedback forms	1 & 2 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1,2,3,4 Effectiveness of Delivery of instructions & Assessment Methods

<u>Note</u>: I.A. test shall be conducted for 20 marks. Average marks of three tests shall be rounded off to the next higher digit.

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No	Bloom's Category	%
1	Remembrance	20
2	Understanding	50
3	Application	30

***Note to IA verifier**: The following documents to be verified by CIE verifier at the end of semester*

1. Blue books (20 marks)
2. Student suggested activities report for 5 marks
3. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

FORMAT OF I A TEST QUESTION PAPER (CIE)

Test/Date and Time	Semester/year	Course/Course Code	Max Marks
Ex: I test/6 th weak of sem 10-11 Am	I/II SEM		20
	Year:		

Name of Course coordinator : Units:__
CO's:_____

Question no	Question	MARKS	CL	CO	PO
1					
2					
3					
4					

Note: Internal choice may be given in each CO at the same cognitive level (CL).

MODEL QUESTION PAPER (CIE)

Test/Date and Time	Semester/year	Course/Course Code	Max Marks
Ex: I test/6 th week of sem 10-11 AM	IV SEM	Operating System	20
	Year: 2015-16	Course code:15CS43T	

Name of Course coordinator :
Units:1,2 Co: 1,2

Note: Answer all questions

Question no	Question	CL	CO	PO
1	Explain OS in user's view and system's view. (5)	U	1	1,2
2	Explain the computer system architecture (5)	U	1	1,2
3	Consider the following set of process with the length of the CPU burst time given in milliseconds Process Burst time Priority P1 9 3 P2 11 1 P3 3 3 The processes are assumed to have arrived in the order P_1, P_2, P_3 all at time 0. What is the waiting time and turnaround time of each process for FCFS & PRIORITY scheduling algorithms? (5)	A	2	1,2
4	What is a process? Draw and explain the state transition diagram of a process.	U	2	1,2

Format for Student Activity Assessment

DIMENSION	Unsatisfactory 1	Developing 2	Satisfactory 3	Good 4	Exemplary 5	Score
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collects some basic information; refer to the topic	Collects relevant information; concerned to the topic	Collects a great deal of information; all refer to the topic	3
Fulfill team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs all duties	Performs all duties of assigned team roles with presentation	4
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Does the assigned job without having to be reminded.	Always does the assigned work without having to be reminded and on given time frame	3
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Listens, but sometimes talk too much	Listens and contributes to the relevant topic	Listens and contributes precisely to the relevant topic and exhibit leadership qualities	3
					TOTAL	**13/4=3.25=4**

All student activities should be done in a group of 4-5 students with a team leader.

MODEL QUESTION PAPER Code: **15CS43T**

Diploma in Computer science & Engineering

IV- Semester

Course Title: Operating System

Time: **3 Hours** Max Marks**: 100**

PART-A

Answer any SIX questions. Each carries 5 marks. **5X6=30 Marks**

1. Write a note on client/server computing.
2. Explain the contents of PCB with neat diagram.
3. Explain the different scheduling criteria.
4. Write a note on critical-section problem and the solution to solve it.
5. How deadlock can be avoided using resource allocation graph? Explain
6. What is fragmentation? Differentiate between internal and external fragmentation.
7. Explain swapping technique with a neat diagram
8. Write a note on Copy-on-write.
9. Discuss briefly client-server model of file sharing

PART-B

Answer any SEVEN full questions each carries 10 marks. **10X7=70 Marks**

1. What are the different operating system operations.

2. Different activities in connection with process management, memory management and storage management

3. Consider the following set of process with the length of the CPU burst time given in milliseconds

Process	Burst Time	Priority
P_1	10	3
P_2	13	1
P_3	3	3
P_4	8	4

The processes are assumed to have arrived in the order P_1, P_2, P_3 & P_4 all at time 0.

a. Draw the Gantt chart for FCFS and PRIORITY scheduling algorithms.
b. What is the waiting time and turnaround time of each process for FCFS & PRIORITY scheduling algorithms.
c. Calculate the average waiting time and average turnaround time for FCFS & PRIORITY scheduling algorithms.

4. Explain the different operations on processes.

5. Explain the banker's algorithm.

6. List and explain different structure of the page table with a neat diagram

7. Explain the contiguous memory allocation.

8. Consider the following reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many page faults would occur for the following page replacement algorithm assuming 3 page frames: 1) LRU 2) FIFO 3) Optimal Page Replacement.

9. List out common file types with their extension and functions

10. Explain Tree-structured directory and Acyclic-graph directory with a neat diagrams

* * *

MODEL QUESTION BANK

Diploma in Computer Science & Engineering

IV Semester

Course Title: Operating System

CO	Question	CL	Marks
I	Write a note on protection and security.	U	05
	Write a note on client/server computing.	U	
	Discuss time sharing system.	U	
	Explain distributed system.	U	
	Explain the peer-to-peer computing.	U	
	Explain OS in user's view and system's view.	U	
	List the advantages and disadvantages of multiprogramming system	U	
	What is an operating system? Explain the computer system architecture.	U	10
	What are the different operating system operations?	U	
	Compare process management and memory management.	U	
	Explain the special-purpose systems.	U	
	Explain clustered system.	U	
	Different activities in connection with process management, memory management and storage management.	U	
II	What is a process? Draw and explain the state transition diagram of a process.	U	05
	Explain the contents of PCB with neat diagram.	U	
	Compare long-term, short-term and medium-term scheduler.	U	
	Explain the different scheduling criteria.	U	
	Explain the different operations on processes.	U	10
	What is inter-process communication (IPC). Explain the two models of IPC with neat diagram.	U	
	Consider the following set of process with the length of the CPU burst time given in milliseconds Process Burst time priority P1 10 3 P2 13 1 P3 3 3 The processes are assumed to have arrived in the order P_1, P_2, P_3 all at time 0. a. Draw the Gantt chart for FCFS and PRIORITY scheduling algorithms. b. What is the waiting time and turnaround time of each process for FCFS & PRIORITY scheduling algorithms? c. Calculate the average waiting time and average turnaround time for FCFS & PRIORITY scheduling algorithms. **Similar Problems**	A	
III	Write a note on semaphores.	U	05
	Explain the 3 requirements for the solution to critical-section problem.	A	
	Write a note on critical-section problem and the solution to solve it.	A	

	What is deadlock? What are the necessary conditions for deadlock?	**U**	
	How deadlock can be prevented? Explain.	**U**	
	How deadlock can be avoided using resource allocation graph? Explain.	**A**	
	Explain how to recover from deadlock.	**U**	
	How deadlock can be detected? Explain.	**U**	**10**
	Explain the banker's algorithm.	**U**	
	Explain resource-allocation graph with deadlock and without deadlock with examples.	**A**	
IV	Write a note on shared pages.	**U**	**05**
	Explain First-fit, Best-fit and Worst-fit strategies for memory allocation.	**U**	
	What is fragmentation? Differentiate between internal and extern fragmentation.	**U**	
	Explain basic concept of memory allocation using paging	**U**	
	Explain how memory is protected in paging with a neat diagram.	**U**	
	Differentiate between logical and physical address space	**U**	
	Explain address binding with a neat diagram.	**U**	
	Explain swapping technique with a neat diagram.	**U**	
	Explain the contiguous memory allocation.	**U**	**10**
	Explain hardware implementation of page table with a neat diagram	**A**	
	List and explain different structure of the page table with a neat diagram.	**A**	
	What is segmentation? Draw and explain its hardware support.	**A**	
V	Explain the virtual memory concept with a neat diagram	**U**	**05**
	Explain virtual address space with a neat diagram.	**U**	
	Explain demand paging with a neat diagram.	**U**	
	Explain the steps for handling page fault with a neat diagram.	**U**	
	Write a note on Copy-on-write.	**U**	
	Explain the need for page replacement.	**U**	
	How frames are allocated? Explain.	**U**	
	Explain the steps involved in the basic page replacement with diagram.	**U**	
	Consider the following reference string: 1,2,3,4,2,1,5,6,2,1,2,3,7,6,3,2,1,2,3,6. How many page faults would occur for the following page replacement algorithm assuming 3 page frames: 1) LRU 2) FIFO 3) Optimal Page Replacement. **Similar Problems**	**A**	**10**
VI	Briefly explain the operations that can be performed on files.	**U**	**05**
	What are the different operations performed on a directory.	**U**	
	Write a note on remote file systems.	**U**	
	Discuss briefly client-server model of file sharing.	**U**	
	Define file and explain the different file attributes.	**U**	**10**
	List out common file types with their extension and functions.	**U**	
	Differentiate between sequential access and direct access methods.	**U**	
	Explain Single-level directory and Two-level directory with a neat diagram.	**A**	
	Explain Tree-structured directory and Acyclic-graph directory with a neat diagram.	**A**	

Government of Karnataka
Department of Technical Education
Board of Technical Examinations, Bangalore

<table>
<tr><td rowspan="3"> </td><td colspan="3">Course Title: <b>PROFESSIONAL ETHICS & INDIAN CONSTITUTION</b></td></tr>
<tr><td>Scheme (L:T:P) : <b>4:0:0</b></td><td>Total Contact Hours: <b>52</b></td><td>Course Code:
15CS44T</td></tr>
<tr><td>Type of Course: <b>Lectures, Self Study& Quiz</b></td><td>Credit <b>:04</b></td><td>Core/ Elective:
<b>Core</b></td></tr>
<tr><td colspan="2">CIE- 25 Marks</td><td colspan="2">SEE- 100 Marks</td></tr>
</table>

Prerequisites: Enthusiasm to learn the subject

Course Objectives:

1. To create an awareness on Engineering Ethics and Human Values.
2. To instill Moral and Social Values and Loyalty.
3. Create awareness among engineers about their social responsibilities
4. Appreciate the Ethical issues
5. To Know the Human rights and concept of women empowerment
6. To know features of our constitution.

Course Outcomes:

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

Course Outcome		CL	Linked PO	Teaching Hrs
CO1	Practice the moral values that ought to guide the Engineering profession.	***R/U***	5,6,7,8,10	**10**
CO2	Discover of the set of justified moral principles of obligation, ideals that ought to be endorsed by the engineers and apply them to concrete situations	***U/A***	5,7,8,10	**09**
CO3	Know the definitions of risk and safety also discover different factors that affect the perception of risk	***R/U***	5,6,7,10	**05**
CO4	Appreciate the Ethical issues and Know the code of ethics adopted in various professional body's and industries	***R/U***	5,6,7,10	**06**
CO5	Justify the need for protection of human rights and to know about concept of women empowerment	***R/U***	5,6,7,8,10	**8**
CO6	Know the successful functioning of democracy in India	***R/U***	5,6,7,9,10	**14**
		Total sessions		**52**

Legend: R; Remember, U: Understand A: Application

COURSE-PO ATTAINMENT MATRIX

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
PROFESSIONAL ETHICS & INDIAN CONSTITUTION	-	-	-	-	3	3	3	3	2	3

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.
If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3
If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2
If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1
If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

COURSE CONTENT AND BLUE PRINT OF MARKS FOR SEE

Unit No	Unit Name	Hour	Questions to be set for SEE			Marks weightage	weightage (%)
			R	U	A		
1	HUMAN VALUES	10	15	15	-	30	21
2	ENGINEERING ETHICS	09	10	15	-	25	17
3	SAFETY, RESPONSIBILITIES OF ENGINEERS	05	05	-	10	15	11
4	ETHICAL ISSUES IN ENGINEERING PRACTICE	06	05	05	5	15	11
5	HUMAN RIGHTS	8		15	5	20	13
6	INDIAN CONSTITUTION	14		25	15	40	27
	Total	52	35	75	35	145	100

Legend: R; Remember, U: Understand A: Application

UNITI: HUMAN VALUES 10Hrs

Professional Ethics-Objectives of study of professional ethics-Human values- Definition of Morals and Ethics-Difference between Morality and Ethics-Values-Definition-Types of values-Definition of Integrity- Concept of Work Ethic- Service Learning- Definition Virtues-Definition-Civic Virtue-Duties and Rights - Respect for Others – Attitude and values, opinions-changing attitude-beliefs-Reliability-Living Peacefully-Means to be adopted for leaving peacefully-Caring-Sharing-Honesty-ValuingTime-Co-operation-Commitment-Empathy-Self-Confidence-Spirituality.

UNTII: ENGINEERING ETHICS 09Hrs

Engineering ethics-Definition-Approach-Senses of Engineering Ethics-variety of moral issues–Inquiry-Types-Moral dilemmas-Steps to solve dilemma-Moral autonomy –Definition-consensus & controversy –Profession-Definition–Ethical theories-Theories about right action Personality–Self control- Self-interest –Self respect.

UNITIII: SAFETY, RESPONSIBILITIES OF ENGINEERS 05Hrs

Safety and risk-definition- - assessment of safety and risk - risk benefit analysis and reducing risk –Personal risk-Public risk-Reducing risk-Voluntary Risk-Collegiality and loyalty–Authority-Types- collective bargaining -occupational crime –Responsibility of engineers–Types-Social responsibility-Professional responsibility-confidentiality-conflicts of interest-liability

UNIT IV:ETHICAL ISSUES IN ENGINEERING PRACTICE 06Hrs

Ethical issues–Industrial standards-Environmental ethics –Plastic waste disposal-E-Waste Disposal-Semi conductor waste Disposal-Industrial waste disposal-Human centred environmental ethics- computer ethics –Types of issues-Computer as the Instrument and Object of Unethical Acts -Engineers as managers-Codes of ethics-Sample code of Ethics like -Institution of Engineers(India)-Institute of Electrical & Electronics engineers- Institute of Electronics & Telecommunication Engineers - Indian Institute of Materials Management.

UNIT V: HUMAN RIGHTS 8 Hrs

Human Rights-Definition-constitutional provisions-right to life and liberty-Human Rights of Women-Discrimination against women- steps that are to be taken to eliminate discrimination against women in Education, employment, health care, Economic and social life, Women in rural areas- Status of Women in India - Constitutional Safeguards - Dowry Prohibition act 1961-Domestic violence act 2005- Sexual harassment at work place bill 2006-Human Rights of Children- Who is a child- list the Rights of the Child- Right to education--Protection of Children from Sexual Offences Act(POCSO)-2012- National Human Rights Commission- Constitution-Powers and function of the Commission-Employee rights- Provisions made-Contractual-Non contractual employee rights-Whistle blowing-definition-Aspects-Intellectual Property Rights (IPR)–Meaning-Need for protection- Briefly description of concept of patents, Copy right, Trade mark.

UNIT VI: INDIAN CONSTITUTION 14Hrs

Introduction to constitution of India-Formation and Composition of the Constituent Assembly-Salient features of the Constitution-Preamble to the Indian Constitution Fundamental Rights-Fundamental Duties-Directive principles of state policy.

Parliamentary system of governance- Structure of Parliament- Lokhasabha and Rajyasabha - Functions of parliament- Legislative ,Executive, Financial Function, Powers of Loksabha and Rajya Sabha- Procedure followed in parliament in making law-Structure of union executive-Power and position of President, Vice President, Prime minister and council of ministers.

Structure of the judiciary: Jurisdiction and functions of Supreme Court, high court, and subordinate courts

Federalism in the Indian constitution, Division of Powers- Union list, State list and concurrent list, Structure of state legislation, Legislative assembly and Legislative council, Functions of state legislature, Structure of state executive-Powers and positions of Governor, ,Speaker, Deputy Speaker, Chief Minister and council of minister.

Local self government- meaning-Threetiersystem-Villagepanchayath-Talukpanchayath-Zillapanchayath-Local bodies-Municipalities and Corporations, Bruhath mahanagara Palike.

Functions of Election commission, UPSC, KPSC.

MODEL QUESTION PAPER

4- Semester Diploma Examination

PROFESSIONAL ETHICS & INDIAN CONSTITUTION Time: **3 Hours**] [Max Marks: **100** **Note:** *Answer any SIX from Part A and any SEVEN from Part B*

PART-A 6x5=30 marks

1. Distinguish between 'morality' and 'ethics'
2. Explain the terms, 'Profession', 'Professional', and 'Professionalism'?
3. Name a few techniques (steps) to reduce risks?
4. List the ill effects of E waste disposal on environment?
5. Explain the role of computers as object of Unethical Acts?
6. State various provisions under 'human rights?
7. Differentiate between 'Patent' and 'Trade secret'?
8. State the function of Governor?
9. Write Note on gram panchayaths?

PART-B 7x10=70 marks

10. Illustrate the ethical aspect principle of caring or sharing, with an example?
11. Explain various actions of an engineer leading to dishonesty?
12. List the situations when moral dilemmas arise?

13. Distinguish between ‘Social responsibility’ and ‘Professional responsibility?
14. Explain Occupational crime?
15. Explain code of Ethics followed in Institution of Engineers?
16. Explain Sexual harassment at work place bill 2006?
17. Explain the basic structure of Parliament?
18. Explain the formation and functions of state high Court?
19. State the role of following members in Rajyasabha?:
    a) Chairman
    b) Leader of the house
    c) Opposition leader

MODEL QUESTION BANK

4th Semester

Course title: PROFESSIONAL ETHICS & INDIAN CONSTITUTION

CO1: PRACTICE THE MORAL VALUES THAT OUGHT TO GUIDE THE ENGINEERING PROFESSION.

Level-1: Remember

1. List the key trends in engineering ethics?
2. Distinguish between ‘morality’ and ‘ethics’?
3. List different types of values and give a few examples in each?
4. List the civic virtues one should develop?
5. List the types of virtues, with an example for each
6. List the factors for one to work peacefully?
7. List different ways the honesty reflects?
8. List the benefits of empathy?

Level-2: Understand

9. Explain the term ‘respect for others’ with suitable example?
10. Explain what should one do or not to do live peacefully?
11. Distinguish between ‘caring’ and ‘sharing’?
12. What are the impediments to proper co-operation?
13. Explain the factors that shape self-confidence in a person?
14. Explain two methods of developing self-confidence?
15. Illustrate the ethical aspect principle of caring or sharing, with an example?
16. Explain various actions of an engineer leading to dishonesty?
17. Explain Service Learning?

CO2: DISCOVER OF THE SET OF JUSTIFIED MORAL PRINCIPLES OF OBLIGATION, IDEALS THAT OUGHT TO BE ENDORSED BY THE ENGINEERS AND APPLY THEM TO CONCRETE SITUATIONS

Level-1: Remember

1. List the objectives of this course ‘professional ethics’?
2. Define Engineering Ethics?
3. State the two approaches to Engineering ethics?
4. Define the term, ‘moral dilemma’?
5. List the situations when moral dilemmas arise?
6. List the steps in confronting moral dilemma?
7. State the five characteristics of professionals?
8. State the specific virtues relating to honesty?
9. Define ‘corporate responsibility’
10. Define ‘corporate accountability?
11. List the skills required to handle moral problems/issues in engineering ethics?

Level-2: Understand

12. Why do people behave unethically?
13. Why and how do moral problems arise in a profession?
14. Explain the moral dilemma
15. Explain the difficulties in solving moral problems?
16. Explain the relation between autonomy and authority?
17. Highlight the principle of ‘pre-conventional level’ of moral development?
18. Explain the terms, ‘Profession’, ‘Professional’, and ‘Professionalism’?
19. Describe the virtues fulfilled under professional responsibility?
20. What is moral integrity? Write on its significance?
21. Distinguish between causal responsibility, moral responsibility and Legal responsibility?
22. Where and how do moral problems arise in engineering practice? Justify the safety and other obligations of professional engineers?

CO3: KNOW THE DEFINITIONS OF RISK AND SAFETY ALSO DISCOVER DIFFERENT FACTORS THAT AFFECT THE PERCEPTION OF RISK

Level-1: Remember

1. Name the factors that influence the perception of risk?
2. List the factors that affect the risk acceptability?
3. Name a few techniques (steps) to reduce risks?
4. List various aspects of collegiality?
5. List factors/principles to justify ‘confidentiality’?

Level-2: Understand

6. Describe ‘institutional authority’ with an example?
7. What is meant by Professional Responsibility?

Level-3: Application

8. Explain ‘collective bargaining with example?
9. Explain briefly ‘‘institutional authority?
10. Explain Occupational crime?

CO4: APPRECIATE THE ETHICAL ISSUES AND KNOW THE CODE OF ETHICS ADOPTED IN VARIOUS PROFESSIONAL BODY'S AND INDUSTRIES

Level-1: Remember

1. List the ill effects of E waste disposal on environment?
2. Define 'computer ethics'? List the issues in 'computer ethics'?
3. Name different types of problems in 'computer ethics'?
4. List the ethical problems by computers in workplace?

Level-2: Understand

5. Describe briefly on code of ethics?
6. What are the duties of an engineer as an experimenter, in environmental ethics?
7. How the plastic waste disposals create havocs?
8. Discuss on Industrial waste disposal creating disasters on environment?

Level-3: Application

9. Explain 'environmental ethics'?
10. Explain human centred environmental ethics?
11. Explain the role of computers as instruments?
12. Explain the role of computers as object of Unethical Acts?
13. Explain the role of engineers as managers?
14. Explain code of Ethics followed in Institution of Engineers?
15. Explain code of Indian Institute of Materials Management?

CO 5: JUSTIFY THE NEED FOR PROTECTION OF HUMAN RIGHTS AND TO KNOW ABOUT CONCEPT OF WOMEN EMPOWERMENT

Level-1: Remember

1. State various provisions under 'human rights?
2. List the features of 'international human rights?
3. State the provisions under professional rights?
4. State the features of the employee rights?
5. List the principles of *conflict resolution?*
6. List the various Special Programs for Women's Development from government?

Level-2: Understand

7. Describe briefly 'trademark'?
8. Differentiate between 'Patent' and 'Trade secret'?
9. Describe 'intellectual property rights?

Level-3: Application

10. Explain briefly the 'copyright'?
11. Explain briefly about patents?
12. Explain the concept of women empowerment?
13. Explain woman and Development?
14. Explain Dowry Prohibition act 1961?
15. Explain POCSO act 2012?
16. Explain domestic violence act 2005?
17. Explain Sexual harassment at work place bill 2006?

CO6: KNOW THE SUCCESSFUL FUNCTIONING OF DEMOCRACY IN INDIA

Level-1: Remember

1. List the function and powers of parliament?
2. State the positions and powers of the Governor?
3. State the powers and Functions of the Chief Minister?
4. State the functions of Taluk panchayaths?
5. State the functions of Zilla panchayaths?
6. List the functions of urban local bodies?
7. State the powers of the president?
8. State the functions of the president?
9. State the powers and Functions of the prime minister?

Level-2: Understand

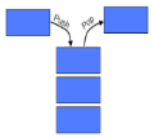
10. Describe briefly about Indian constitution?
11. Write about structure of Parliament?
12. What are the Procedure followed in parliament in making law?
13. Describe the role of gram panchayaths in community upliftment?
14. Describe the role of: a) Chairman b) Leader of the house c) Opposition leader in Rajyasabha?
15. Describe importance of Judiciary?
16. Describe the Structure of state legislation
17. Describe the Jurisdiction of Supreme court,
18. Describe the Jurisdiction high court?

Level-3: Application

19. Explain theFormation & Composition of constituent assembly?
20. Explain preamble and its main objectives of Indian constitution?
21. Explain the fundamental Rights of Every citizen?
22. Explain the fundamental Duties of Every citizen?
23. Explain salient features of Indian constitution?
24. Explain the basic structure of Parliament?
25. Explain the composition of Lokasabha?
26. Explain the composition of Rajyasabha?
27. Explain the Directive principles of state policy?
28. Explain the Structure Of The Judiciary?
29. Explain the Powers of Rajya Sabha and Loksabha ?
30. Describe briefly about, Division of Powers- Union list, State list and concurrent list,
31. Explain the federalism in the Indian constitution ?
32. Explain the role of vice president?
33. Explain the role of State council of ministers?
34. Explain the functions of Zilla panchayaths?
35. Explain the formation and functions of Supreme Court?
36. Explain the formation and functions of state high Court?
37. Explain the formation and functions of subordinate courts?
38. Explain the formation of three tier system for local self government?

* * *

Government of Karnataka
Department of Technical Education
Bengaluru

	Course Title: **Data Structures lab**		
	Scheme (L:T:P) : **0:2:4**	Total Contact Hours: **78**	Course Code: **15CS45P**
	Type of Course: **Tutorial and Practical's**	Credit **:03**	Core/ Elective: **Core**
CIE- 25 Marks			SEE- 50 Marks

Prerequisites

Knowledge of programming language.

Course Objectives

Design and Develop programs on derived data types and data structures such as stack, queue, linked list, sorting and searching.

Course Outcome

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

Course Outcome		Experiment linked	CL	Linked PO	Teaching Hrs
CO1	Demonstrate the concepts of pointers	***1 to 5***	***U***	2,3,4,8,10	**15**
CO2	Design programs based on the concepts of structures and files.	***6 to 9***	***U/A***	2,3,4,8,10	**12**
CO3	Demonstrate the concepts of Stack, Queue and Linked List and apply various operations on them.	***10 to 15***	***U/A***	2,3,4,8,10	**21**
CO4	Demonstrate the concept of binary tree traversal and its operations.	***16***	***U/A***	2,3,4,8,10	**06**
CO5	Design programs based on the concept of sorting and searching techniques.	***17 to 20***	***U/A***	2,3,4,8,10	**24**
			Total sessions		**78**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

Course-PO Attainment Matrix

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
Data Structures lab	**-**	**3**	**3**	**3**	**-**	**-**	**-**	**3**	**-**	**3**

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.

If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3

If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2

If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1

If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

List of Graded Practical Exercises

Sl. No	PART – A
1	Write a C program to illustrate the use of pointers in arithmetic operations.
2	Write a C program to swap two numbers using Call by value and Call by reference parameter passing techniques.
3	Write a C program to find the smallest element in an array of 10 elements using pointers.
4	Write a C program to create a dynamic array of integers using pointers.
5	Write a C program to illustrate the use of function pointer.
6	Write a C program to count the number of characters in a given file.
7	Write a C program to create a file that contains at least 5 records which consists of Book No., Book Name, Author, Publisher, and price.
8	Write a C program to display the contents of the file created in program No. 5 in the following format **Book No. Book Name Author Publisher Price**
9	Write a C program to copy one file to another file using command line arguments.
Sl. No	**PART – B**
10	Write a C program to implement singly linked list: insert, delete, search and display.
11	Write a C program to illustrate Stack operations using arrays.
12	Write a C program to find the GCD of two numbers using recursion
13	Write a C program to evaluate a POSTFIX expression using stack operations.
14	Write a C program to implement queue using arrays.
15	Write a C program to implement queue using linked list.
16	Write a C program to implement binary tree traversal operations.
17	Write a C program to sort an array using bubble sort
18	Write a C program to sort an array using selection sort.
19	Write a C program to search a given number using linear search.
20	Write a C program to search a given number using binary search.

Reference

1. Data Structures using C by E. Balaguruswamy - Tata McGraw-Hill Education
2. Data Structures using C by Aaron M Tenenbaum - Pearson Education India

Suggested list of student activities

Note: the following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course coordinator and programme coordinator.
2. Each group should conduct different activity and no repeating should occur

1	Conduct a survey on various uses of pointers and submit a report of 2 pages.
1	Conduct a survey on the real time applications of Stacks and Queues and submit a report of 3 to 4 pages.
2	Conduct a survey on the real time applications of Linked Lists and Trees and submit a report of 3 to 4 pages.
3	Compare C structures and Java Classes and submit a report.
4	Quiz, Presentation and Seminars

Course Delivery

The course will be delivered through Demonstration and Practices

Course Assessment and Evaluation Scheme

Method	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct Assessment	CIE (Continuous Internal Evaluation)	IA	Students	Twice tests (average of two tests)	10	Blue books	1 to 5
				Record and	10	Record	1 to 5
				Student activity	05	Report.	
				Total	**25**		
	SEE (Semester End Examination)	End Exam		**End of the course**	**50**	Answer scripts at BTE	1 to 5
Indirect Assessment	Student Feedback on course		Students	Middle of the course		Feedback forms	1,2 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1 to 5 Effectiveness of Delivery of instructions & Assessment Methods

***CIE** – Continuous Internal Evaluation *****SEE** – Semester End Examination

Note:

1. I.A. test shall be conducted as per SEE scheme of valuation. However obtained marks shall be reduced to 10 marks. Average marks of two tests shall be rounded off to the next higher digit.
2. Rubrics to be devised appropriately by the concerned faculty to assess Student activities.

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No	Bloom's Category	%
1	Remembrance	10
2	Understanding	30
3	Application	60

***Note to IA verifier*: The following documents to be verified by CIE verifier at the end of semester**

1. Blue Book(10 marks)
2. Record (10 marks)
3. Student suggested activities report for 5 marks
4. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

Format for Student Activity Assessment

DIMENSION	Unsatisfactory 1	Developing 2	Satisfactory 3	Good 4	Exemplary 5	Score
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collects some basic information; refer to the topic	Collects relevant information; concerned to the topic	Collects a great deal of information; all refer to the topic	3
Fulfill team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs all duties	Performs all duties of assigned team roles with presentation	4
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Does the assigned job without having to be reminded.	Always does the assigned work without having to be reminded and on given time frame	3
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Listens, but sometimes talk too much	Listens and contributes to the relevant topic	Listens and contributes precisely to the relevant topic and exhibit leadership qualities	3
					TOTAL	**13/4=3.25=4**

All student activities should be done in a group of 4-5 students with a team leader.

Scheme of Valuation for End Examination

1	Writing one program from PART-A and one program from PART-B	10+10=20
2	Executing any one program with result	20
3	Viva	10
	Total	**50**

***Evaluation should be based on the screen output only. No hard copy required.*

***Change of question is allowed only once. Marks of 05 should be deducted in the given question.*

Resource requirements for Data Structures Lab

(For an Intake of 60 Students [3 Batches])

Sl. No.	Equipment	Quantity
1	PC systems (latest configurations with speakers)	20
2	Laser Printers	01
3	Networking (Structured) with CAT 6e / wireless 24 Port switches / Wireless Router I/O Boxes for networking(as required)	03
4	Broad Band Connection	01

***Open Source Software should be encouraged*

* * *

MODEL QUESTION BANK

Sl. No	PART – A
1	Write a C program to illustrate the use of pointers in arithmetic operations.
2	Write a C program to swap two numbers using Call by value and Call by reference parameter passing techniques.
3	Write a C program to find the smallest element in an array of 10 elements using pointers.
4	Write a C program to create a dynamic array of integers using pointers.
5	Write a C program to illustrate the use of function pointer.
6	Write a C program to count the number of characters in a given file.
7	Write a C program to create a file that contains at least 5 records which consists of Book No., Book Name, Author, Publisher, and price.
8	Write a C program to display the contents of the file created in program No. 5 in the following format **Book No.** **Book Name** **Author** **Publisher** **Price**
9	Write a C program to copy one file to another file using command line arguments.
Sl. No	**PART – B**
10	Write a C program to implement singly linked list: insert, delete, search and display.
11	Write a C program to illustrate Stack operations using arrays.
12	Write a C program to find the GCD of two numbers using recursion
13	Write a C program to evaluate a POSTFIX expression using stack operations.
14	Write a C program to implement queue using arrays.
15	Write a C program to implement queue using linked list.
16	Write a C program to implement binary tree traversal operations.
17	Write a C program to sort an array using bubble sort
18	Write a C program to sort an array using selection sort.
19	Write a C program to search a given number using linear search.
20	Write a C program to search a given number using binary search.

Government of Karnataka
Department of Technical Education
Bengaluru

	Course Title: **OOP with Java Lab**		
	Scheme (L:T:P) : **0:2:4**	Total Contact Hours: **78**	Course Code: **15CS46P**
	Type of Course: **Tutorial and Practical's**	Credit **:03**	Core/ Elective: **Core**
CIE- 25 Marks			SEE- 50 Marks

Prerequisites

C Programming Knowledge.

Course Objectives

Learn to write, debug, and document well-structured Java applications.

Course Outcome

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

Course Outcome		Experiment linked	CL	Linked PO	Teaching Hrs
CO1	Create and use classes and Objects.	***1 to 7***	***U, A***	2,3,4,8,10	**30**
CO2	Demonstrate the methods of String, String Buffer, Vector and Wrapper Classes.	***8 to 10***	***U, A***	2,3,4,8,10	**15**
CO3	Implement interfaces and inheritance.	***11 to 13***	***U, A***	2,3,4,8,10	**15**
CO4	Demonstrate the use of packages.	***14***	***U, A***	2,3,4,8,10	**6**
CO5	Implement Multithreading concepts	***15***	***U, A***	2,3,4,8,10	**6**
CO6	Demonstrate programming techniques with exception handling.	***16***	***U, A***	2,3,4,8,10	**6**
			Total sessions		**78**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

Course-PO Attainment Matrix

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
OOP with Java Lab	**-**	**3**	**3**	**3**	**-**	**-**	**-**	**3**	**-**	**3**

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.

If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3

If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2

If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1

If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

LIST OF GRADED PRACTICAL EXERCISES

Sl.No	Practical/Exercise
1	Write a Java Program to sort a list of names selection sort technique.
2	Write a Java Program to define a class, describe its constructor, overload the Constructors and instantiate its object.
3	Write a Java Program to define a class, define instance methods for setting and Retrieving values of instance variables and instantiate its object.
4	Write a Java Program to define a class, define instance methods and overload them and use them for dynamic method invocation.
5	Write a Java Program to demonstrate use of sub class.
6	Write a Java Program to demonstrate use of nested class.
7	Write a Java Program to implement array of objects.
8	Write a Java program to practice - using String class and its methods. - using String Buffer class and its methods.
9	Write a Java Program to implement Vector class and its methods.
10	Write a Java Program to implement Wrapper classes and their methods.
11	Write a Java Program to implement inheritance and demonstrate use of method overriding.
12	Write a Java Program to implement multilevel inheritance by applying various access controls to its data members and methods.
13	Write a program to demonstrate - use of implementing interfaces. - use of extending interfaces.
14	Write a Java program to implement the concept of importing classes from user defined package and creating packages.
15	Write a program to implement the concept of threading. -by extending Thread Class -by implementing Runnable Interface
16	Write a program to implement the concept of Exception Handling - using predefined exception. - by creating user defined exceptions.

Reference

1. Programming with Java, 4th edition, Balagurusamy, Mc Graw Hill, ISBN-9780070141698
2. Computer Programming in Java, Junaid Khateeb and Dr. G.T. Thampi, Wiley Dreamtech, ISBN: 9788177228298

Suggested list of student activities

Note: the following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 2-3 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course co-ordinator and programme co-ordinator.
2. Each group should conduct different activity and no repeating should occur.
   Some of the topics for mini projects are: 💧 Hotel Management System 💧 E-Bill Board, Online insurance 💧 Online Mobile Contributor 💧 Online Restaurant 💧 Public Distribution System 💧 SECURE E-banking security 💧 Service Call Management 💧 Secure location system 💧 Standard DB Editor 💧 Flight Reservation System 💧 Job Service Provider 💧 Net Chattering 💧Hospital Management System 💧 E – Shopping Mall, Personalized web search engine 💧E-health Care 💧Telecom Linkage System 💧 Multi Message communication and file sharing system in network 💧 ATM Database System 💧 Health record System using referral 💧 Online Library management 💧 Typing text recognition 💧 Online bus ticket booking 💧 Birthday reminder via Email 💧Time table management system for college 💧 Agriculture Management System 💧 District medical data center 💧 etc.

Course Delivery

The course will be delivered through Demonstration and Practices

Course Assessment and Evaluation Scheme

Method	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct Assessment	CIE (Continuous Internal Evaluation)	IA	Students	Two tests (average of two tests)	10	Blue books	1 to 6
				Record	10	Record	1 to 6
				Student activity	05	Report	
				Total	**25**		
	SEE (Semester End Examination)	End Exam		**End of the course**	**50**	Answer scripts at BTE	1 to 6
Indirect Assessment	Student Feedback on course		Students	Middle of the course		Feedback forms	1,2,3 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1 to 6 Effectiveness of Delivery of instructions & Assessment Methods

***CIE** – Continuous Internal Evaluation *****SEE** – Semester End Examination

Note:

1. I.A. test shall be conducted as per SEE scheme of valuation. However obtained marks shall be reduced to 10 marks. Average marks of two tests shall be rounded off to the next higher digit.
2. Rubrics to be devised appropriately by the concerned faculty to assess Student activities.

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No	Bloom's Category	%
1	Remembrance	10
2	Understanding	30
3	Application	60

***Note to IA verifier**: The following documents to be verified by CIE verifier at the end of semester*

1. Blue Book(10 marks)
2. Record (10 marks)
3. Student suggested activities report for 5 marks
4. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

Format for Student Activity Assessment

DIMENSION	Unsatisfactory 1	Developing 2	Satisfactory 3	Good 4	Exemplary 5	Score
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collects some basic information; refer to the topic	Collects relevant information; concerned to the topic	Collects a great deal of information; all refer to the topic	3
Fulfill team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs all duties	Performs all duties of assigned team roles with presentation	4
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Does the assigned job without having to be reminded.	Always does the assigned work without having to be reminded and on given time frame	3
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Listens, but sometimes talk too much	Listens and contributes to the relevant topic	Listens and contributes precisely to the relevant topic and exhibit leadership qualities	3
					TOTAL	**13/4=3.25=4**

All student activities should be done in a group of 4-5 students with a team leader.

Scheme of Valuation for End Examination

1	Writing two programs	10+10=20
2	Executing any one program	20
3	Viva Voice	10
	Total	**50**

***Evaluation should be based on the screen output only. No hard copy required.*

***Change of question is allowed only once. Marks of 05 should be deducted in the given question.*

Resource requirements for OOP with Java Lab

(For an Intake of 60 Students [3 Batches])

Sl. No.	Equipment	Quantity
1	PC systems (latest configurations with speakers)	20
2	Laser Printers	01
3	Networking (Structured) with CAT 6e / wireless 24 Port switches / Wireless Router I/O Boxes for networking(as required)	03
4	Broad Band Connection	01

***Open Source Software should be encouraged*

* * *

MODEL QUESTION BANK

1	Write a Java Program to sort a list of names selection sort technique.
2	Write a Java Program to define a class, describe its constructor, overload the Constructors and instantiate its object.
3	Write a Java Program to define a class, define instance methods for setting and Retrieving values of instance variables and instantiate its object.
4	Write a Java Program to define a class, define instance methods and overload them and use them for dynamic method invocation.
5	Write a Java Program to demonstrate use of sub class.
6	Write a Java Program to demonstrate use of nested class.
7	Write a Java Program to implement array of objects.
8	Write a Java program to practice - using String class and its methods. - using String Buffer class and its methods.
9	Write a Java Program to implement Vector class and its methods.
10	Write a Java Program to implement Wrapper classes and their methods.
11	Write a Java Program to implement inheritance and demonstrate use of method overriding.
12	Write a Java Program to implement multilevel inheritance by applying various access controls to its data members and methods.
13	Write a program to demonstrate - use of implementing interfaces. - use of extending interfaces.
14	Write a Java program to implement the concept of importing classes from user defined package and creating packages.
15	Write a program to implement the concept of threading. -by extending Thread Class -by implementing Runnable Interface
16	Write a program to implement the concept of Exception Handling - using predefined exception. - by creating user defined exceptions.

* * *

Government of Karnataka
Department of Technical Education
Bengaluru

Course Title: **Linux Lab**		
Scheme (L:T:P) : **0:2:4**	Total Contact Hours: **78**	Course Code: **15CS47P**
Type of Course: **Tutorial, Practical's & Student Activity**	Credit **:03**	Core/ Elective: **Core**
CIE- 25 Marks		SEE- 50 Marks

Prerequisites

Basic Knowledge of Operating System and its usage.

Course Objectives

1. Describe the basic file system in Linux and its file attributes.
2. Appraise different filters, process handling, regular expressions and network handling features using suitable commands.
3. Summarize different Linux commands to write Shell Programs.

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

Course Outcome		Experiment linked	CL	Linked PO	Teaching Hrs
CO1	Demonstrate installation of Linux operating system and understand the importance of Linux.	***1***	*U*	2,3,4,8,10	**06**
CO2	Appraise various command usage of files and directories.	***2 to 4***	*U, A*	2,3,4,8,10	**12**
CO3	Show the working of **vi** editor in all its modes using various commands.	***5 to 8***	*U, A*	2,3,4,8,10	**12**
CO4	Manage shell and processes using various commands.	***9 to 12***	*U, A*	2,3,4,8,10	**12**
CO5	Write Shell scripts and C programs using **vi** editor.	***13 to 21***	*A*	2,3,4,8,10	**30**
CO6	Demonstrate Linux administration and its environment	***22***	*A*	2,3,4,8,10	**06**
			Total sessions		**78**

Legends: R = Remember U= Understand; A= Apply and above levels (Bloom's revised taxonomy)

Course-PO Attainment Matrix

Course	Programme Outcomes									
	1	2	3	4	5	6	7	8	9	10
Linux Lab	**-**	**3**	**3**	**3**	**-**	**-**	**-**	**3**	**-**	**3**

Level 3- Highly Addressed, Level 2-Moderately Addressed, Level 1-Low Addressed.

Method is to relate the level of PO with the number of hours devoted to the COs which address the given PO.
If ≥40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 3
If 25 to 40% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 2
If 5 to 25% of classroom sessions addressing a particular PO, it is considered that PO is addressed at Level 1
If < 5% of classroom sessions addressing a particular PO, it is considered that PO is considered not-addressed.

List of Graded Practical Exercises

PART-A

1. **Introduction**- Linux Architecture- Shell, Kernel, System calls.
Linux installation- Steps for installing Linux Operating System
Comparison between Linux and other Operating Systems, Applications of Linux Operating System.

2. **Internal & External commands in Linux.**
    - Internal commands- echo, type, etc.
    - External commands- ls, cp, mv, rm, cat, etc
    - Other commands – tput clear, who, cal, date, bc, man, passwd, uname (with different options).

3. **Working with files & directories**.
    - Know the categories of files.
    - Directory related Commands – pwd, mkdir, rmdir, cd, ls
    - Manipulating Absolute paths and Relative paths using **cd** command.
    - File related Commands – cat, cp, mv, rm, comm, cmp, diff, tar, umask, wc

4. **Basic File attributes.**
    - Listing seven attributes of a file : ls and its options
    - File Permissions: Absolute and Relative permissions
    - Manipulating File permissions using **chmod** command
    - Manipulating File Ownership using **chown** command
    - Manipulating Hardlink and Softlink using **ln** command

5. **Learn to use vi editor.**
    - Three modes of **vi** editor.
    - Input mode commands.
    - Command mode commands.
    - Ex mode commands.

6. **Simple Filters** – head, tail, cut, paste, sort, uniq, tr, pr.
7. **Expressions & search patterns** .(dot operator), *, ^, +, ?, grep, egrep, fgrep
8. **Process Management commands**.
    - Process creation, status, Identifying process, ps -f & its options,
    - Running process in background, Job control, and Process termination.

- Changing process priority, scheduling process (Usage of sleep and wait commands)

9. **Introduction to shell programming.**
    - Introduction, Uses of shell script, Shell special characters, comments, command separator, escaping, quoting command substitution.
    - Creating shell script, Shell identifiers, Shell variables, Destroying a variable, Positional parameters & command line arguments.
    - Evaluating expressions, Text formatting with echo & tput script termination.
10. **Shell control structures**
    - if, case, for, while, relational and logical operators,
    - Advanced filter – sed and awk.
11. **Linux system administration**

    Managing file system, Disk management utilities, mounts,
    umount, df, du, fdisk, su, useradd etc.
12. **Linux Environment**

    Introduction, Environment variables, Command prompt system variables,
    Profiles, files, terminal variable stty command and its options,
    Command history, editing Environment variable.

PART – B

13. Write a shell script to display current date, time, username and directory.
14. Write script to determine whether given file exist or not, file name is supplied as command line argument, also check for sufficient number of command line argument
15. Write shell script to show various system configuration like:
    a) Currently logged user name and his long name
    b) Current shell
    c) Your home directory
16. Write shell script to show various system configuration like:
    a) Your operating system type
    b) Your current path setting
    c) Your current working directory
    d) Show all available shells
17. Write a Shell script to accept any two file names and check their file permissions.
18. Write a Shell script to read a file name and change the existing file permissions.
19. Write a shell script to print current month calendar and to replace the current day number by ‘*’or ‘**’ respectively.
20. Write a C-program to fork a child process and execute the given Linux commands.
21. Write a C-program to fork a child process, print owner process ID and its parent process ID.

22. Write a C-program to prompt the user for the name of the environment variable, check its validity and print an appropriate message.

References

1. "UNIX - Concepts and Applications", Sumitabha Das 4th Edition, Tata McGraw Hill, 2006.
2. http://www.freeos.com/guides/lsst/
3. http://heather.cs.ucdavis.edu/~matloff/Linux/LinuxInstall.pdf (Chapter 1, Linux installation).
4. http://docs.fedoraproject.org/en-US/Fedora/20/pdf/Installation_Guide/Fedora-20-Installation_Guide-en-US.pdf.

Suggested list of student activities

Note: the following activities or similar activities for assessing CIE (IA) for 5 marks (Any one)

Student activity like mini-project, surveys, quizzes, etc. should be done in group of 3-5 students.

1. Each group should do any one of the following type activity or any other similar activity related to the course and before conduction, get it approved from concerned course coordinator and programme coordinator.
2. Each group should conduct different activity and no repeating should occur

1	Conduct a survey on the advantages of Linux Operating System and prepare a report of 2 to 3 pages.
2	Prepare Report of 2 to 3 pages on Linux Administration.
3	Conduct a survey on other editors available in Linux Operating System with their features and prepare a report of 2 to 3 pages.
4	Compare the file system in Linux with the file system in Windows and submit a report.
5	Conduct a case study on handling various Networking Commands in Linux Operating System and submit a report.

Course Delivery

The course will be delivered through tutorials of two hours and four hours of hands on practice per week.

Course Assessment and Evaluation Scheme

Method	What		To whom	When/Where (Frequency in the course)	Max Marks	Evidence collected	Course outcomes
Direct assessment	CIE (Continuous Internal Evaluation)	IA Tests	Students	Two IA Tests (Average of two tests will be computed)	10	Blue books	1 to 6
				Record Writing (Average marks of each exercise to be computed)	10	Record Book	1 to 6
				Student Activities	05	Activities Report	1 to 6
				TOTAL	**25**		
	SEE (Semester End Examination)	End Exam		End of the course	50	Answer scripts at BTE	1 to 6
Indirect assessment	Student Feedback on course		Students	Middle of the course		Feedback forms	1 to 3 Delivery of course
	End of Course Survey			End of the course		Questionnaires	1 to 6 Effectiveness of Delivery of instructions & Assessment Methods

***CIE** – Continuous Internal Evaluation   ***SEE** – Semester End Examination

Note:

1. I.A. test shall be conducted as per SEE scheme of valuation. However obtained marks shall be reduced to 10 marks. Average marks of two tests shall be rounded off to the next higher digit.
2. Rubrics to be devised appropriately by the concerned faculty to assess Student activities.

Questions for CIE and SEE will be designed to evaluate the various educational components (Bloom's taxonomy) such as:

Sl. No	**Bloom's Category**	**%**
1	Remembrance	10
2	Understanding	30
3	Application	60

***Note to IA verifier**: The following documents to be verified by CIE verifier at the end of semester*

1. Blue Book(10 marks)
2. Record (10 marks)
3. Student suggested activities report for 5 marks
4. Student feedback on course regarding Effectiveness of Delivery of instructions & Assessment Methods.

Format for Student Activity Assessment

DIMENSION	**Unsatisfactory 1**	**Developing 2**	**Satisfactory 3**	**Good 4**	**Exemplary 5**	**Score**
Collection of data	Does not collect any information relating to the topic	Collects very limited information; some relate to the topic	Collects some basic information; refer to the topic	Collects relevant information; concerned to the topic	Collects a great deal of information; all refer to the topic	3
Fulfill team's roles & duties	Does not perform any duties assigned to the team role	Performs very little duties	Performs nearly all duties	Performs all duties	Performs all duties of assigned team roles with presentation	4
Shares work equally	Always relies on others to do the work	Rarely does the assigned work; often needs reminding	Usually does the assigned work; rarely needs reminding	Does the assigned job without having to be reminded.	Always does the assigned work without having to be reminded and on given time frame	3
Listen to other Team mates	Is always talking; never allows anyone else to speak	Usually does most of the talking; rarely allows others to speak	Listens, but sometimes talk too much	Listens and contributes to the relevant topic	Listens and contributes precisely to the relevant topic and exhibit leadership qualities	3
					TOTAL	**13/4=3.25=4**

All student activities should be done in a group of 4-5 students with a team leader.

Scheme of Valuation for End Examination

1	Write the syntax of commands with examples from any one exercise from PART-A	10
2	Write any one program from PART-B	10
3	Execution of PART A commands and PART B Program with result	10+10
4	Viva voce	10
	Total	**50**

***Evaluation should be based on the screen output only. No hard copy required.*

***Change of question is allowed only once. Marks of 05 should be deducted in the given question.*

Resource requirements for Linux Lab

(For an Intake of 60 Students [3 Batches])

Sl. No.	Equipment	Quantity
1	PC systems (latest configurations with speakers)	20
2	Laser Printers	01
3	Networking (Structured) with CAT 6e / wireless 24 Port switches / Wireless Router I/O Boxes for networking(as required)	03
4	Broad Band Connection	01

***Open Source Software should be encouraged*

* * *

MODEL QUESTION BANK

PART -A

1) Write the syntax and execute the following commands.

Command Name	Syntax	Example
Echo		
Ls		
Cat		
Rm		
Cal		

2) Write the syntax and execute the following commands.

Command Name	Syntax	Example
ls –l		
Chmod		
Chown		
ln		

3) Write the syntax and execute the following commands.

Command Name	Syntax	Example
Pwd		
Mkdir		
Cd		
Comm.		
Cmp		

4) Write the syntax and execute the following commands.

Command Name	Syntax	Example
Head		
Tail		
Cut		
Paste		
Sort		

5) Write the syntax and execute the following commands.

Command Name	Syntax	Example
Umount		
Df		
Du		
Fdisk		
Su		

PART – B

1. Write a shell script to display current date, time, username and directory.
2. Write script to determine whether given file exists or not, file name is supplied as command line argument, also check for sufficient number of command line argument
3. Write shell script to show various system configuration like:
    - a) Currently logged user name and his long name
    - b) Current shell
    - c) Your home directory
    - d) Your operating system type
4. Write shell script to show various system configuration like:
    - a) Your current path setting
    - b) Your current working directory
    - c) Show all available shells
5. Write a Shell script to accept any two file names and check their file permissions.
6. Write a C-program to fork a child process and execute the given Linux commands.
7. Write a shell script to print current month calendar and to replace the current day number by ‘*’or ‘**’ respectively.
8. Write a C-program to fork a child process and execute the given Linux commands.
9. Write a C-program to fork a child process, print owner process ID and its parent process ID.
10. Write a C-program to prompt the user for the name of the environment variable, check its validity and print an appropriate message.

* * *

4ನೇ ಸೆಮಿಸ್ಟರ್-ಕನ್ನಡ ಕಲಿ-2 (ಕನ್ನಡೇತರರಿಗೆ ಕನ್ನಡ ಪರಿಚಯ)

4th Semester	**Course:** **Kannada Kali-2**	**Course Code:15KA4NT** (2016-17)
	No. of Credits:02	**No. of teaching hours/week:02** No. of teaching hours/Semester:26
	Mode of Assessment and Evaluation: Semester End Examination (SEE)only. No CIE.	**Maximum Marks: 50 (SEE only)** **Minimum Passing marks:20**

ಉದ್ದೇಶ:

1. ಕೇಳುವುದು, ಗ್ರಹಿಸುವುದು, ನಿರರ್ಗಳವಾಗಿ ಮತ್ತು ಸ್ಪಷ್ಟವಾಗಿ ಓದುವ ಮತ್ತು ಮಾತನಾಡುವ (ಅಭಿವ್ಯಕ್ತಿಸುವ) ಸಾಮರ್ಥ್ಯವನ್ನು ಬೆಳೆಸುವುದು.
2. ಜ್ಞಾನಾರ್ಜನೆ, ಸಾಹಿತ್ಯಾಭಿರುಚಿ, ಚಿಂತನೆ ಮತ್ತು ಆನಂದಕ್ಕಾಗಿ ಸ್ವತಂತ್ರವಾಗಿ ಓದಲು, ಬರೆಯಲು ಮತ್ತು ಮಾತನಾಡಲು ಸಮರ್ಥರಾಗುವಂತೆ ಮಾಡುವುದು.
3. ಪದ ಸಂಪತ್ತನ್ನು ಹೆಚ್ಚಿಸಿಕೊಂಡು ಸ್ಪಷ್ಟ ಉಚ್ಚಾರಣೆಯೊಡನೆ ಲಿಖಿತ ಮತ್ತು ಮೌಖಿಕ ಚಟುವಟಿಕೆಗಳನ್ನು ಮಾಡಿಸಿ, ಸ್ವತಂತ್ರವಾಗಿ ಭಾಷೆಯ ಬಳಕೆ ಮಾಡುವುದು.
4. ನಾಡು-ನುಡಿ, ಸಂಸ್ಕೃತಿ ಮತ್ತು ಸಾಹಿತ್ಯಗಳ ಪರಿಚಯ ಮತ್ತು ಆತ್ಮಿಯ ಭಾವಾಭಿಮಾನವನ್ನು ಬೆಳೆಸುವುದು.
5. ಕ್ರಿಯಾತ್ಮಕ ಚಟುವಟಿಕೆಗಳಿಂದ ಭಾಷಾ ಕೌಶಲ್ಯದ ಸರಳ ಪ್ರಯೋಗ ಮಾಡಿಸುವುದು./ಕಲಿಸುವುದು.
   (ಕ್ರಿಯಾತ್ಮಕ ಚಟುವಟಿಕೆ ಎಂದರೆ, ವರ್ಣಮಾಲೆ ಪರಿಚಯ, ವ್ಯಾಕರಣದ ಸರಳ ಪರಿಚಯ, ಗುಣಿತಾಕ್ಷರ, ಸಂಯುಕ್ತಾಕ್ಷರಗಳು, ನಾಮಪದ, ಲಿಂಗ, ವಚನ, ಪ್ರತ್ಯಯಗಳು, ವಾಕ್ಯರಚನೆ (ಕತೃ, ಕರ್ಮ, ಕ್ರಿಯಾಪದ) ಇತ್ಯಾದಿ).

Course outcome:

1. Developing listening and speaking skills.
2. Easy Interaction with peers.
3. Students can use the language at ease in daily life situations

ಪಠ್ಯಕ್ರಮ ಮತ್ತು ಸರಳ ಭಾಷಾ ಕೌಶಲ್ಯ
(ಕನ್ನಡ ಕಲಿ-ಪಠ್ಯಪುಸ್ತಕ -ಶ್ರೀ ಲಿಂಗದೇವರು ಹಳೇಮನೆ - ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಂಪಿ ಪ್ರಕಾಶನ)

ಭಾಗ-2

ಪಾಠಗಳ ಕ್ರಮಾಂಕ Lesson No	**ಪಠ್ಯವಸ್ತುವಿನ ವಿವರ - Curriculum Content**	**ಸೆಮಿಸ್ಟರ್ ಬೋಧನ ಆವಧಿ Total no.of Classes /Sem**
Part-I		
11	Plan to go for a movie. Comparative, non-past tense, instrumental and ablative case	02
12	Conversation between Doctor & Patient. Potential forms, accusative case.	02
13	Enquiring about friend's family	02

	Past tense -d, and -t- and -id-, negation.	
14	Conversation between friends – Past tense -k – T – D and -id-v negation verbal noun	02
15	Routine activities of a Student.	01
16	About children's education. Continuous, Perfect tenses and negations.	02
17	Halebidu - Belur Relative participle, negation and Participle nouns.	02
18	Discussing about Examination and future plan-conditional and negative conditions.	03
19	Karnataka (Lesson for reading)(reading skill)	03
20	bEku bEDagaLu (Lesson for reading (Reading skill)	03
Part-II	Kannada Scripts	03
	ECA-word/sentence formation/letter/small essay writing	01
	ಒಟ್ಟು ಗಂಟೆಗಳು	**26**

ಸೂಚನೆಗಳು:

- ಮೇಲಿನ ಪಾಠಗಳ ಪುನರಾವರ್ತಿತ ಭಾಗಗಳಿಗೆ ಬದಲಾಗಿ "ಕ್ರಿಯಾತ್ಮಕ ಚಟುವಟಿಕೆ"ಯಿಂದ ಗಳಿಸುವ ಅಕ್ಷರ ಜ್ಞಾನದಿಂದ ಪದ ಸಂಪತ್ತು ಹೆಚ್ಚಿಸಿ, ಪದಗಳಿಂದ ಸ್ವಂತ ವಾಕ್ಯಗಳ ರಚನೆ ಮಾಡಿಸುವುದು. (ಅಮ್ಮ, ಮೊಬೈಲ್, ಕನ್ನಡ ಭಾಷೆ, ಕವಿಗಳು, ನಾಟಕ, ಜನಪದ ಕಲೆ, ನಾಡಿನ ಪ್ರಸಿದ್ಧ ವ್ಯಕ್ತಿಗಳು, ಸಹೋದರ, ಸ್ನೇಹಿತ, ತರಕಾರಿ, ದೋಸೆ, ತಿಂಡಿ, ನಿದ್ದೆ, ಬಿಸಿ, ಚಳಿ, ಆಕಾಶ, ಓದು, ಇತ್ಯಾದಿ ನಿತ್ಯ ಬಳಕೆಯ ಸರಳ ಪದಗಳಿಂದ ವಾಕ್ಯರಚನೆ ಮತ್ತು 25–50 ಪದಗಳ ಕಿರು ಪ್ರಬಂದ ರೂಪದ ಲೇಖನ ರಚನೆ).
- ಸಂಸ್ಥೆಯ ಪ್ರಾಚಾರ್ಯರಿಗೆ ವಿದ್ಯಾರ್ಥಿಯ ಮನವಿ ಪತ್ರ, ಕುಂದುಕೊರತೆಗಳ ಬಗ್ಗೆ ಸಂಬಂಧಿಸಿದವರಿಗೆ ಪತ್ರ, ಸ್ನೇಹಿತರಿಗೆ ಪತ್ರಗಳು, ಸರಳವಾಗಿ ಯಾವುದೇ ಸಾಮಾನ್ಯ ವಿಷಯಗಳ ಬಗ್ಗೆ ಪತ್ರಲೇಖನ. (6–10 ವಾಕ್ಯಗಳು).

ಆಕರ ಗ್ರಂಥಗಳು:

1. **ಕನ್ನಡ ಕಲಿ–ಶ್ರೀ ಲಿಂಗದೇವರು ಹಳೇಮನೆ – ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಂಪಿ.**
2. ಪ್ರಾಥಮಿಕ ಶಾಲೆಯ ಕನ್ನಡ ಪಠ್ಯಪುಸ್ತಕಗಳು
3. ಸರಳ ಕನ್ನಡ ವ್ಯಾಕರಣ ಪುಸ್ತಕಗಳು– ಎಂ.ವಿ ನಾಗರಾಜರಾವ್/ಇತರೆ ಲೇಖಕರು.
4. ಪ್ರಯೋಗ ಪ್ರಣತಿ–ಪ್ರಥಮ ಪಿಯುಸಿ ಪೂರಕ ಪಠ್ಯ.
5. ಸರಳ ಪತ್ರವ್ಯವಹಾರದ ಪುಸ್ತಕಗಳು

ಡಿಪ್ಲೋಮಾ 4ನೇ ಸೆಮಿಸ್ಟರ್–***ಕನ್ನಡ ಕಲಿ–2 (ಕನ್ನಡೇತರರಿಗೆ ಕನ್ನಡ ಪರಿಚಯ)***

ಸೆಮಿಸ್ಟರ್ ಅಂತಿಮ ಲಿಖಿತ ಪರೀಕ್ಷೆ

ಸಮಯ: 2 ಗಂಟೆಗಳು ಗರಿಷ್ಠ ಅಂಕಗಳು:50

---

1. Fill in the blanks using the appropriate words.
2. Rewrite as directed.
3. Combine the following sentences.
4. Translate into Kannada.
5. Answer the following questions.
6. Fill in the blanks using the correct past tense forms of the verbs giving in the bracket.

7. Transform into negative.
8. Substitute and complete the sentence
9. Vocabulary (meanings of words) using formation of sentences (any five).
10. Questions from lessons 17 to 19. (Out of 6 questions, answer any 3 questions).
11. Scripts- consonants form- +vowel (10 types)
12. Conversation & other questions. (KK-Exercises)

ಮಾದರಿ ಪ್ರಶ್ನೆಪತ್ರಿಕೆ:

ಡಿಪ್ಲೋಮಾ 4ನೇ ಸೆಮಿಸ್ಟರ್–*ಕನ್ನಡ ಕಲಿ–2 (ಕನ್ನಡೇತರರಿಗೆ ಕನ್ನಡ ಪರಿಚಯ)*

ಸೆಮಿಸ್ಟರ್ ಅಂತಿಮ ಲಿಖಿತ ಪರೀಕ್ಷೆ

ಸಮಯ: 2 ಗಂಟೆಗಳು ಗರಿಷ್ಠ ಅಂಕಗಳು:50

I. (a) Fill in the blank using the correct past tense forms of the verbs given in the bracket. 3+2 =05

1.ಅವರು ನಿನ್ನೆ ಊರಿನಿಂದ .... (ಬಾ)
2. ಅವಳು ಒಂದು ಹೆಣ್ಣು ಮಗು .... (ಹೆರು)
3.ನಾನು ನಿನಗಾಗಿ ತುಂಬಾ ಹೊತ್ತು................ (ಕಾಯು)

(b) Fill in the blank using the correct verbal participle forms of the verbs given in the bracket.

1.ಆ ಹುಡುಗಿ ಮನೆ .... ಹೋದಳು. (ಬಿಡು)
2. ಅವನು ಇವತ್ತ ಊರಿನಿಂದ..............ನಾಳೆ ಬರುತ್ತಾನೆ. (ಹೊರಡು)

II. Give the negative forms of the following sentence. (Any Five) 1X5=05

ಅ) ನೀವು ಪುಸ್ತಕ ಕೊಡಿ.

ಆ) ನೀವು ಸಿಗರೇಟ್ ಸೇದಬಹುದು.

ಇ) ಅವರು ನನಗೆ ಚೆನ್ನಾಗಿ ಗೊತ್ತು.

ಈ) ಅವರು ಕನ್ನಡ ಚೆನ್ನಾಗಿ ಕಲಿತರು.

ಉ) ಅವಳು ತಲೆ ಬಾಚಿಕೊಂಡು ಬಂದಳು.

ಊ) ಅವನಿಗೆ ಫೋನ್ ಬಂದಿದೆ.

ಎ) ರವಿ ಮನೆಯಲ್ಲಿ ಮಲಗಿರ್ತಾನೆ.

III. Translate into KANNADA. (Any Five) 2X5=10

1) Who will come with you?
2) Today Ms. Kamala will go to her native place.
3) You must drink butter milk daily.
4) Please, don’t talk to me.

5) How much advance money did you pay for the hostel?
6) How many of you are learning Kannada seriously?
7) If I get good marks in diploma, I will get admission for BE program.
8) At what time today you will be available in the hostel?.

IV. Vocabulary.

(a) Write English equivalents of the Kannada words. (Any five) 1X5=05

1. ಆಗಸ 2. ಶೈಲಿ 3. ಅನುಮಾನ 4.ಪರೀಕ್ಷೆ 5.ಜಾತಿ 6.ನೈಸರ್ಗಿಕ 7.ಮತ 8. ವಾಣಿಜ್ಯ

(b) Write Kannada equivalents of the English words. (Any five) 1X5=05

1. Wealth 2. Religion 3. Memory 4.fear 5.Environment 6. Primary 7. Mistakes 8. Tall

VI. Conversation:

ಈ ಕೆಳಗಿನ ಅಪೂರ್ಣ ಸಂಭಾಷಣೆಯನ್ನು ಆವರಣದಲ್ಲಿ (bracket) ನೀಡಿರುವ ಪದಗಳನ್ನು ಅರ್ಥಮಾಡಿಕೊಂಡು ಪೂರ್ತಿ ಮಾಡಿ. –05

ರಾಜು: ನಿನಗೆ ನಿನ್ನೆ ಮೋಹನ್ ಸಿಕ್ಕನಾ?
ರಾಮು: .... negative) ನಿನಗೆ ಸಿಕ್ಕನಾ?
ರಾಜು .... (Positive) ಹೌದು, ನಿಮ್ಮನ್ನು ನೋಡುವುದಕ್ಕೆ ಹೋಗುತ್ತೀನಿ ಅಂತ ಹೇಳಿದ.
ರಾಮು: .... (Enquiring about meeting him)
ರಾಜು: ಅವನು ಕೆಲಸ ಬಿಟ್ಟನಂತೆ.
ರಾಮು: .... (Questioning)
ರಾಜು: ....(Answer).

VII.Transform the following sentences as per direction. (Any Five) 1X5=05

1. ಮಕ್ಕಳು ರಸ್ತೆಯಲ್ಲಿ ಆಟ ಅಡ್ತಾ (into present continuous) ಇದ್ದವು.
2. ಹುಡುಗರು ತರಗತಿಯಲ್ಲಿ ಸುಮ್ಮನೆ (into present continuous) ನಗ್ತಾ ಇದ್ದರು.
3. ಆ ಹೆಂಗಸರು ಜಗಳ ಆಡ್ತಾ ಇದ್ದಾರೆ. (into past continuous)
4. ತರಕಾರಿ ಕಡಿಮೆ ಬೆಲೆಗೆ ಸಿಗ್ತಾ ಇದೆ. (into past continuous)
5. ಅವನು ದಿನಾ ಇಲ್ಲಿಗೆ ಬರ್ತಾನೆ. (into habitual)
6. ಇಲ್ಲಿ ಬಸ್ಸುಗಳು ತುಂಬಾ ಓಡಾಡ್ತ (into habitual) ಇವೆ.
7. ಆಂಧ್ರಪ್ರದೇಶದಿಂದ ಬಂದಿದ್ದ ವಿದ್ಯಾರ್ಥಿಗಳು ಎಲ್ಲಿದ್ದಾರೆ?(into present perfect)

VIII.Write the Kannada alphabet in the traditional order. 05

OR

ಹಳೇಬೀಡು ಬೇಲೂರಿನಿಂದ ಎಷ್ಟು ದೂರದಲ್ಲಿದೆ ಮತ್ತು ಯಾವ ಜಿಲ್ಲೆಯಲ್ಲಿದೆ? ಇಲ್ಲಿನ ದೇವಸ್ಥಾನಗಳ ಹೆಸರುಗಳು ಏನು ಮತ್ತು ಅವುಗಳನ್ನು ಕಟ್ಟಿಸಿದವರು ಯಾರು?

IX. Combine the following: (Any One) 1X1=01

(A) 1) ಮನೆ + ಇಂದ =
2) ಮ್ + ಔ =

(B) Combine the following sentence using verbal participle form. (Any One) 1X1=01

ಅ) ಹುಡುಗರು ದುಡ್ಡು ಕೊಟ್ಟರು.
ಹುಡುಗರು ಸರ್ಕಸ್ ನೋಡಿದರು.
ಆ) ನಾನು ಕೆಲಸ ಮಾಡ್ತಾ ಇದ್ದೆ.
ನಾನು ಎಂ.ಎ. ಓದಿದೆ.

(B) Frame meaningful small sentences with using words given given below:(Any Three) -1X3=03.
ಅ) ಮರ ಆ) ಫಲ ಇ) ಊರು ಈ) ಪೇಪರ್ ಉ) ಇವರು ಊ) ಮನೆ ಎ) ಶಾಲೆ

ಕನ್ನಡ ಪಠ್ಯಕ್ರಮ ರಚನಾ ಸಮಿತಿ

- **ಸಂಪಾದಕೀಯ ಸಮಿತಿ:**

1. ಶ್ರೀ ಟಿ ಎಲ್ ರವೀಂದ್ರ, ಉಪನ್ಯಾಸಕರು, ಸರ್ಕಾರಿ ಜಿ.ಆರ್.ಐ.ಸಿ.ಪಿ ಬೆಂಗಳೂರು.
೨. ಶ್ರೀ ಟಿ. ತಿಮ್ಮಪ್ಪ, ಉಪನ್ಯಾಸಕರು(ಆಯ್ಕೆ ಶ್ರೇಣಿ), ಯಾಂತ್ರಿಕ ವಿಭಾಗ, ಸರ್ಕಾರಿ ಪಾಲಿಟೆಕ್ನಿಕ್, ತುಮಕೂರು.

- **ಸಲಹಾ ಸಮಿತಿಯ ಬಾಹ್ಯ ಸಂಪನ್ಮೂಲ ವ್ಯಕ್ತಿಗಳು.**

1. ಪ್ರೊ. (ಡಾ.) ಡಿ. ಪಾಂಡುರಂಗ ಬಾಬು, ಕುಲಸಚಿವರು, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಂಪಿ.
2. ಪ್ರೊ. (ಡಾ.) ಅಶೋಕ್ ಕುಮಾರ್ ರಂಜರೆ, ಪ್ರಾಧ್ಯಾಪಕರು, ಪ್ರಸಾರಾಂಗ ವಿಭಾಗ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಂಪಿ.
3. ಪ್ರೊ. (ಡಾ.) ಕೆ ವೈ ನಾರಾಯಣ ಸ್ವಾಮಿ, ಸಹ ಪ್ರಾಧ್ಯಾಪಕರು, ಸ್ನಾತಕೋತ್ತರ ವಿಭಾಗ, ಸರ್ಕಾರಿ ಕಲಾ ಕಾಲೇಜು, ಬೆಂಗಳೂರು.
4. ಪ್ರೊ. (ಡಾ.) ಜೆ ಬಾಲಕೃಷ್ಣ, ಪ್ರಾಧ್ಯಾಪಕರು ಹಾಗು ಮುಖ್ಯಸ್ಥರು, ಕನ್ನಡ ಭಾಷಾ ಅಧ್ಯಯನ ವಿಭಾಗ, ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾಲಯ, (ಜಿಕೆವಿಕೆ) ಹೆಬ್ಬಾಳ, ಬೆಂಗಳೂರು.

KARNATAKA STATE BOARD OF TECHNICAL EXAMINATION, BENGALURU.													
TEACHING AND EXAMINATION SCHEME FOR KANNADA COURSE IN DIPLOMA PROGRAME													
SEMESTER: III				COMMON TO ALL DIPLOMA PROGRAMMES								C-15 Curriculum	
SL.NO	COURSE NAME	Teaching Department	COURSE /QP CODE	Teaching scheme					Examination scheme				
				Contact hours									
				TH	TU	PR	TOTAL	Credit	Exam paper duration in Hrs	End exam		Maximum CIE Marks (IA+SA)	Minimum Marks for passing. (IA + SA)
										Max marks	Min marks		
	THEORY												
1	KANNADA KALI-1	KA	15KA3NT	2	-	-	2	2	-	-	-	50	20
2	TANTRIKA KANNADA -1	KA	15KA3KT	2	-	-	2	2	-	-	-	50	20

CIE- Continuous Internal Examination: SEE-Semester End Examination: IA-Internal Assessment Tests: SA- Student Activity.

Note: 1. Candidates studied Kannada as one subject in 10th standard shall take Tantrika Kannada 1 &2. Others may take “Kannada Kali-1&2”.

2. In 3rd Semester- Assessment is only by CIE and no SEE. Average marks of three I A tests shall be rounded off to the next higher digit. Rubrics to be devised appropriately to assess student activity.

KARNATAKA STATE BOARD OF TECHNICAL EXAMINATION, BENGALURU.													
TEACHING AND EXAMINATION SCHEME FOR KANNADA COURSE IN DIPLOMA PROGRAME													
SEMESTER: IV				COMMON TO ALL DIPLOMA PROGRAMMES								C-15 Curriculum	
SL.NO	COURSE NAME	Teaching Department	COURSE /QP CODE	Teaching scheme					Examination scheme				
				Contact hours									
				TH	TU	PR	TOTAL	Credit	Exam paper duration in Hrs	Sem End Exam		Maximum CIE Marks (IA+SA)	Minimum Marks for passing. (IA + SA)
										Max Exam Marks	Min Passing Marks		
	THEORY												
1	KANNADA KALI-2	KA	15KA4NT	2	-	-	2	2	2	50	20	-	-
2	TANTRIKA KANNADA -2	KA	15KA4KT	2	-	-	2	2	2	50	20	-	-

CIE- Continuous Internal Examination: SEE-Semester End Examination: IA-Internal Assessment Tests: SA- Student Activity.

Note: In 4th Semester- Assessment is only by SEE and no CIE. To award diploma certificate, passing in Kannada course is mandatory. However Kannada course is not included in the eligibility criteria for promotion to the higher semester.

ಡಿಪ್ಲೋಮಾ-ತಾಂತ್ರಿಕ ಕನ್ನಡ-2 (ಕನ್ನಡ ಬಲ್ಲವರಿಗಾಗಿ)

4ನೇ ಸೆಮಿಸ್ಟರ್ - ತಾಂತ್ರಿಕ ಕನ್ನಡ -2 (ಸಾಹಿತ್ಯ ಮತ್ತು ಭಾಷಾ ಕೌಶಲ್ಯ ಪ್ರಯೋಗ)

ಪಠ್ಯಕ್ರಮ

4th Semester	**Course:** **ತಾಂತ್ರಿಕ ಕನ್ನಡ -2**	**Course Code:15KA4KT** (2016-17)
	No. of Credits:02	**No. of teaching hours/week:02** No. of teaching hours/Semester:26
	Mode of Assessment and Evaluation: Semester End Examination (SEE)only. No CIE.	**Maximum Marks: 50 (SEE only)** **Minimum Passing marks:20**

ಪಠ್ಯ ಪ್ರಕಾರ	ಪಾಠ	ಪಠ್ಯದ ಹೆಸರು/ಲೇಖಕರು/ಪ್ರಕಟಣೆ	ಸೆಮಿಸ್ಟರ್ ಬೋಧನಾವಧಿ ಗಂಟೆಗಳು
ಕಾವ್ಯ ಮಂಜರಿ-(ಬದುಕು ಮತ್ತು ಮಾನವತೆ)	1	(ಕಾವ್ಯ ಗುಚ್ಛಗಳು) (1) ನನ್ನ ಹಣತೆ-ಡಾ:ಜಿ.ಎಸ್.ಎಸ್. (2) ಮಂಕು ತಿಮ್ಮನ ಕಗ್ಗ-ಡಿ.ವಿ.ಜಿ	02
ಸಂಸ್ಕೃತಿ	2	ಅಲೆಕ್ಸಾಂಡರ್‌ನ ಗುರುದಕ್ಷಿಣೆ-ಮಾಸ್ತಿ ವೆಂಕಟೇಶ ಅಯ್ಯಂಗಾರ್	02
ಪರಿಸರ/ಸಾಹಸ	3	ವೈನಾಡಿನ ನರಭಕ್ಷಕರು - ಪೂರ್ಣಚಂದ್ರ ತೇಜಸ್ವಿ	02
ಕ್ರೀಡೆ/ಕಲೆ	4	ಜಿ.ಆರ್.ವಿಶ್ವನಾಥ್-ಡಾ: ಕೆ.ಪುಟ್ಟಸ್ವಾಮಿ	02
ತಂತ್ರಜ್ಞಾನ	5	ಮಾಹಿತಿ ತಂತ್ರಜ್ಞಾನ-ಒಂದು ಸ್ಥೂಲ ನೋಟ-ಜಿ.ಎನ್.ನರಸಿಂಃಮೂರ್ತಿ	02
ಯಶೋಗಾಥೆ/ವ್ಯಕ್ತಿಚಿತ್ರಣ	6	ಡಾ:ವಿಶ್ವೇಶ್ವರಯ್ಯ-ವ್ಯಕ್ತಿ ಮತ್ತು ಐತಿಹ್ಯ - ಎ.ಎನ್.ಮೂರ್ತಿರಾವ್	02
ಭಾಷಾ ಕೌಶಲ್ಯ-ಚಟುವಟಿಕೆಗಳು	7	ಲಿಖಿತ ಅಭಿವ್ಯಕ್ತಿ: ಪತ್ರಗಳ ರಚನೆ-ವ್ಯಾಖ್ಯೆ: ಪತ್ರದ ಭಾಷೆ, ಶೈಲಿ, ನಮೂನೆಗಳು (1) ವೈಯಕ್ತಿಕ ಪತ್ರ (ಪ್ರವಾಸ/ಕೋರಿಕೆ.(ಮನವಿ/ಆತ್ಮಿಯರಿಗೆ ಬರೆಯುವ ಪತ್ರಗಳು)..) (2) ಪತ್ರ ವ್ಯವಹಾರ (ವಾಣಿಜ್ಯ ಸಂಸ್ಥೆಗಳಿಗೆ ಬರೆಯುವ/ಪ್ರತ್ಯುತ್ತರ ಪಡೆಯುವ, ಬ್ಯಾಂಕ್‌ಗಳಿಗೆ/ಸರ್ಕಾರಿ ಕಚೇರಿಗಳಿಗೆ ಬರೆಯುವ ಪತ್ರಗಳು....)-ಮಾದರಿಗಳು (3) ಅಭ್ಯರ್ಥನ ಪತ್ರ (ಹುದ್ದೆಗೆ ಅರ್ಜಿ) -1-2 ನಮೂನೆಗಳು-4-5 ಪ್ರಶ್ನೆಗಳು (4) ಓದುಗರ ವಿಭಾಗಕ್ಕೆ ಪತ್ರಿಕಾ ಸಂಪಾದಕರಿಗೆ ಬರೆಯುವ ಪತ್ರಗಳು 1 ನಮೂನೆ-3-4 ವಿಷಯಗಳ ಮೇಲೆ ಪತ್ರ ಬರೆಸುವುದು.	06
	8	ಸಂಕ್ಷಿಪ್ತ ಲೇಖನ (ಸಾರಾಂಶ ಲೇಖನ)	02
	9	ಮೌಖಿಕ ಅಭಿವ್ಯಕ್ತಿ> ಚರ್ಚಾ ಸ್ಪರ್ಧೆ/ಕೂಟ-ಭಾಷಣ-ಆಶುಭಾಷಣ -ಕಾರ್ಯಕ್ರಮ ನಿರೂಪಣೆ ಮಾಡುವುದು.	06
		ಒಟ್ಟು ಅವಧಿ	26 ಗಂಟೆಗಳು

ಡಿಪ್ಲೋಮಾ 4ನೇ ಸೆಮಿಸ್ಟರ್ (ಕನ್ನಡಬಲ್ಲ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ)
ತಾಂತ್ರಿಕ ಕನ್ನಡ–2

ಪರಿವಿಡಿ

ಭಾಗ–1

ಕಾವ್ಯ ಗುಚ್ಛ

1. ನನ್ನ ಹಣತೆ–ಡಾ:ಜಿ.ಎಸ್.ಶಿವರುದ್ರಪ್ಪ
2. ಮಂಕುತಿಮ್ಮನ ಕಗ್ಗ–ಡಿವಿಜಿ

ಗದ್ಯ ಸಾಹಿತ್ಯ

3. ಅಲೆಕ್ಸಾಂಡರನ ಗುರುದಕ್ಷಿಣೆ (ಸಂಸ್ಕೃತಿ–ಕತೆ)–ಶ್ರೀನಿವಾಸ (ಮಾಸ್ತಿ)
4. ವೈನಾಡಿನ ನರಭಕ್ಷಕರು (ಪರಿಸರ–ಸಾಹಸ)–ಕೆ.ಪಿ.ಪೂ.ತೇಜಸ್ವಿ
5. ಲಿಟ್ಲಲ್ ಮಾಸ್ಟರ್ (ಕ್ರೀಡೆ/ಕಲೆ)–ಡಾ.ಕೆ.ಪುಟ್ಟಸ್ವಾಮಿ
6. ಮಾಹಿತಿ ತಂತ್ರಜ್ಞಾನ–ಜಿ.ಎನ್.ನರಸಿಂಹಮೂರ್ತಿ
7. ಡಾ:ವಿಶ್ವೇಶ್ವರಯ್ಯ–ವ್ಯಕ್ತಿ ಮತ್ತು ಐತಿಹ್ಯ–ಎ.ಎನ್.ಮೂರ್ತಿರಾವ್

ಭಾಗ–2 –ಭಾಷಾ ಕೌಶಲ್ಯ ಚಟುವಟಿಕೆಗಳು

(1)ಬರಹ ರೂಪದ ಸಂವಹನ ಕನ್ನಡ–ಅಭಿವ್ಯಕ್ತಿಯ ಸ್ವರೂಪ
ಔಪಚಾರಿಕ ಮತ್ತು ಅನೌಪಚಾರಿಕ ಪತ್ರಗಳು

(ಅ) ಪತ್ರವ್ಯವಹಾರ–ವ್ಯಾಖ್ಯೆ–ವಿವರಣೆ

(ಆ) ಪತ್ರಗಳ ಮಾದರಿಗಳು

1. ವಾಣಿಜ್ಯ ಪತ್ರಗಳು–ವ್ಯಾಖ್ಯೆ, ಕೆಲವು ವಿಧಗಗಳು
2. ಖಾಸಗಿ/ವೈಯಕ್ತಿಕ ಪತ್ರಗಳು
3. ಪತ್ರಿಕೆಗಳಿಗೆ ಬರೆಯುವ (ಓದುಗರ)ಪತ್ರಗಳು
4. ಅಭ್ಯರ್ಥನ ಪತ್ರಗಳು

(2) ಸಾರಾಂಶ ಲೇಖನ: ವ್ಯಾಖ್ಯೆ, ಉದ್ದೇಶ, ವಿಧಾನಗಳು.

3 . ಮೌಖಿಕ ಅಭಿವ್ಯಕ್ತಿ ಚಟುವಟಿಕೆಗಳು(ತರಗತಿ ಚಟುವಟಿಕೆಗಳು)

1. ವಿಷಯಾತ್ಮಕ ಭಾಷಣಗಳು
2. ಆಶುಭಾಷಣ (ರಚನಾತ್ಮಕ ವಿಷಯಗಳು)
3. ಚರ್ಚೆ (ವಿಚಾರ ವಿನಿಮಯ/ಪರ–ವಿರುದ್ಧ ವಾದ ಮಂಡನೆ)
4. ನಿರೂಪಣೆ

Course outcome:

1. Developing listening and speaking skills.
2. Easy Interaction with peers.
3. Students can use the language at ease in daily life situations

ಡಿಪ್ಲೋಮಾ ನಾಲ್ಕನೇ ಸೆಮಿಸ್ಟರ್ (ಕನ್ನಡ ವಿದ್ಯಾರ್ಥಿಗಳಿಗೆ)

ತಾಂತ್ರಿಕ ಕನ್ನಡ–2

ಸಮಯ: **2.00** ಗಂಟೆ ಅಂಕಗಳು: 50

I. ಕೆಳಗಿನ ಯಾವುದೇ **ಐದು** ಪ್ರಶ್ನೆಗಳಿಗೆ 1–2 **ಪೂರ್ಣ** ವಾಕ್ಯಗಳಲ್ಲಿ ಉತ್ತರಿಸಿ. 1X5=05

(1) ಮಾಹಿತಿ ತಂತ್ರಜ್ಞಾನದ ಮಾಹಿತಿಯನ್ನು ನಷ್ಟಗೊಳಿಸುವ ಅನಿಷ್ಟ ಯಾವುದು?
(2) ದಿವಾನ್ ಪದವಿ ಬಂದಾಗ ಸರ್.ಎಂ.ವಿಶ್ವೇಶ್ವರಯ್ಯನವರು ತಮ್ಮ ತಾಯಿಗೆ ಹೇಳಿದ ಮಾತೇನು?
(3) ಅರಿಸ್ಟಾಟಲ್ ಯಾರು ಮತ್ತು ಅವರು ಅಲೆಕ್ಸಾಂಡರನಿಗೆ ಏನಾಗಬೇಕು?
(4) ಸುತ್ತೋಲೆ ಅಥವ ಪರಿಪತ್ರ ಎಂದರೇನು?
(5) ಫಿನಿಕ್ಸ್ ಎಂದರೇನು?
(6) 'ಖೆಡ್ಡಾ' ಎಂದರೇನು?
(7) ನಿರೂಪಕರೆಂದರೆ ಯಾರು?

II. ಕೆಳಗಿನ ಯಾವುದೇ **ಮೂರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ಸಂಕ್ಷಿಪ್ತವಾಗಿ ಉತ್ತರಿಸಿ. 5X3=15

(1) ಕವಿ "ಹಣತೆ ಹಚ್ಚುತ್ತೇನೆ ನಾನು' ಎಂದು ಏಕೆ ಹೇಳುತ್ತಾರೆ?
(2) ಕ್ಲಿಯಾಂತಸನ ಸಾವು
(3) ಕಾಕನಕೋಟೆ ಕಾಡು ಹೇಗಿದೆ?
(4) ಅಂತರಜಾಲದ ಉಪಯೋಗಗಳು.
(5) ಅನೌಪಚಾರಿಕ ಅಭಿವ್ಯಕ್ತಿ ಎಂದರೇನು ತಿಳಿಸಿ.
(6) ಚರ್ಚೆ – ವ್ಯಾಖ್ಯೆ ಮತ್ತು ಉಪಯೋಗದ ಬಗ್ಗೆ ಬರೆಯಿರಿ.

III . ಈ ಕೆಳಗಿನ ಯಾವುದೇ **ಮೂರು** ಪ್ರಶ್ನೆಗಳಿಗೆ ವಿವರಣಾತ್ಮಕ ಉತ್ತರ ಬರೆಯಿರಿ. 10X3=30

(ಅ) ಹುಲ್ಲಾಗು ಬೆಟ್ಟದಡಿ...... ಕಗ್ಗದಲ್ಲಿ ಮನುಷ್ಯ ಏನಾಗಬೇಕೆಂದು ಮತ್ತು ಸಂಗೀತ ಕಲೆಯೊಂದು ಸಾಹಿತ್ಯ ಕಲೆಯೊಂದು...." ಕಗ್ಗದಲ್ಲಿ ಕವಿ ಇವೆಲ್ಲ ಮನುಷ್ಯನಿಗೆ ಏಕೆ ಬೇಕೆಂದು ಹೇಳುತ್ತಾರೆ?

(ಆ) ಅಣ್ಣನನ್ನು ಕಾಪಾಡಲು ಯೇಗ ಮಾಡಿದ ಸಾಹಸವನ್ನು ವಿವರಿಸಿ.

(ಅಥವ)

ಅತಿಯಾದ ನಗರೀಕರಣಕ್ಕಾಗಿ ಕಾಡುಗಳ ನಾಶದಿಂದ ಪರಿಸರದ ಮೇಲಾಗುವ ಪರಿಣಾಮಗಳ ಬಗ್ಗೆ ಬರೆಯಿರಿ.

(ಇ) ನೀವು ಕಾಲೇಜಿನಿಂದ ಹೋಗಿಬಂದ ಪ್ರವಾಸದ ಅನುಭವ ಕುರಿತು ನಿಮ್ಮ ಗೆಳೆಯರಿಗೆ ಪತ್ರ ಬರೆಯಿರಿ.

(ಈ) ಕೆಳಗಿನ ವಿಷಯವನ್ನು ಒಂದು ಸೂಕ್ತ ಶೀರ್ಷಿಕೆ ಸಹಿತ 30 ಪದಗಳ ಮಿತಿಯಲ್ಲಿ **ಸಂಕ್ಷೇಪಗೊಳಿಸಿ.**

ನೀಲಾಂಬರ ದ್ವೀಪ. ಇದೊಂದು ಸುಂದರ ದ್ವೀಪ. ಪ್ರವಾಸಿಗಳಿಗೆ ಸ್ವರ್ಗಸಮಾನ ದ್ವೀಪ. ಈ ದ್ವೀಪ ಹಿಂದೂ ಮಹಾಸಾಗರದ ದಕ್ಷಿಣಕ್ಕಿರುವ ಆರು ದ್ವೀಪ ಸಮೂಹದಲ್ಲಿ ಮಧ್ಯದಲ್ಲಿ ಹುಣ್ಣಿಮೆ ಚಂದ್ರನಂತೆ ಕಂಗೊಳಿಸುತ್ತಿರುವ ದೊಡ್ಡ ದ್ವೀಪ. ಈ ದ್ವೀಪ ಒಂದು ಭಾಗದಲ್ಲಿ ಹಸಿರು ಚಾದರ ಹಾಸಿದಂತೆ ಸಮತಟ್ಟಾದ ಹುಲ್ಲುಗಾವಲು. ಇನ್ನೊಂದು' ಪಕ್ಕ ಬಗೆಬಗೆಯ ಹಣ್ಣುಗಳ ಮತ್ತು ಹೂವುಗಳ ಗಿಡಗಳು ಮತ್ತು ಅಡಿಕೆ, ಮಾವು, ಮೆಣಸು, ಏಲಕ್ಕಿ, ಲವಂಗದಂತಹ ಗಿಡ–ಮರಗಳಿಂದ ಕೂಡಿದೆ.ಈ ದ್ವೀಪದ ಮಧ್ಯೆ ಕಿರೀಟದಂತೆ ನಮ್ಮ ಉದಕಮಂಡಲದಂತಿರುವ ಹಸಿರಿನ ಬೆಟ್ಟ. ನಿಸರ್ಗದತ್ತ ಹೂವುಗಳ ಗಿಡಗಳಿಂದ ಪುಷ್ಪೋದ್ಯಾನದಂತಿದೆ. ಪ್ರಕೃತಿಯೇ ನಿರ್ಮಿಸಿರುವ ತಿಳಿನೀರಿನ ಸುಂದರ ಕೊಳ ಈ ಬೆಟ್ಟದ

ಆಕರ್ಷಣೆಯಾಗಿದೆ. ಹೀಗಾಗಿ ಈ ದ್ವೀಪ ಪ್ರವಾಸಿಗರಿಗೆ ಅಪಾರ ಆಕರ್ಷಕ ತಾಣವಾಗಿದೆ. ಇಲ್ಲಿನ ಜನ ಸಹ ಸೌಜನ್ಯಶೀಲರು. ಸೃಷ್ಠಿಯ ಶೃಂಗಾರವನ್ನೆಲ್ಲ ಒಳಗೊಂಡ ಈ ದ್ವೀಪದ ಮುಖ್ಯ ಕಸುಬು ಕೃಷಿ, ತೋಟಗಾರಿಕೆ ಮತ್ತು ಪ್ರವಾಸೋದ್ಯವಾಗಿರುವುದರಿಂದ, ಇದೊಂದು ಶ್ರೀಮಂತ ದ್ವೀಪವಾಗಿದೆ.

****

ಕನ್ನಡ ಪಠ್ಯಕ್ರಮ ರಚನಾ ಹಾಗು ಪಠ್ಯಪುಸ್ತಕ ಸಮಿತಿ

- **ಸಂಪಾದಕೀಯ ಸಮಿತಿ:**

1. ಶ್ರೀ ಟಿ ಎಲ್ ರವೀಂದ್ರ, ಉಪನ್ಯಾಸಕರು, ಸರ್ಕಾರಿ ಜಿ.ಆರ್.ಐ.ಸಿ.ಪಿ ಬೆಂಗಳೂರು.
2. ಶ್ರೀ ಟಿ. ತಿಮ್ಮಪ್ಪ, ಉಪನ್ಯಾಸಕರು(ಆಯ್ಕೆ ಶ್ರೇಣಿ), ಯಾಂತ್ರಿಕ ವಿಭಾಗ, ಸರ್ಕಾರಿ ಪಾಲಿಟೆಕ್ನಿಕ್, ತುಮಕೂರು.

- **ಸಲಹಾ ಸಮಿತಿಯ ಬಾಹ್ಯ ಸಂಪನ್ಮೂಲ ವ್ಯಕ್ತಿಗಳು.**

1. ಪ್ರೊ. (ಡಾ.) ಡಿ. ಪಾಂಡುರಂಗ ಬಾಬು, ಕುಲಸಚಿವರು, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಂಪಿ.
2. ಪ್ರೊ. (ಡಾ.) ಅಶೋಕ್ ಕುಮಾರ್ ರಂಜರೆ, ಪ್ರಾಧ್ಯಾಪಕರು, ಪ್ರಸಾರಾಂಗ ವಿಭಾಗ, ಕನ್ನಡ ವಿಶ್ವವಿದ್ಯಾಲಯ, ಹಂಪಿ.
3. ಪ್ರೊ. (ಡಾ.) ಕೆ ವೈ ನಾರಾಯಣ ಸ್ವಾಮಿ, ಸಹ ಪ್ರಾಧ್ಯಾಪಕರು, ಸ್ನಾತಕೋತ್ತರ ವಿಭಾಗ, ಸರ್ಕಾರಿ ಕಲಾ ಕಾಲೇಜು, ಬೆಂಗಳೂರು.
4. ಪ್ರೊ. (ಡಾ.) ಜೆ ಬಾಲಕೃಷ್ಣ, ಪ್ರಾಧ್ಯಾಪಕರು ಹಾಗು ಮುಖ್ಯಸ್ಥರು, ಕನ್ನಡ ಭಾಷಾ ಅಧ್ಯಯನ ವಿಭಾಗ, ಕೃಷಿ ವಿಶ್ವವಿದ್ಯಾಲಯ, (ಜಿಕೆವಿಕೆ) ಹೆಬ್ಬಾಳ, ಬೆಂಗಳೂರು.