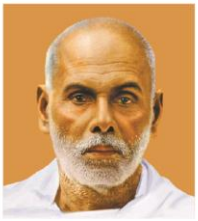
Sree Narayana Guru College
of Engineering & Technology
CHALAKKODE P.O., KOROM, PAYYANUR, KANNUR-670 307



SUBJECT COVERAGE

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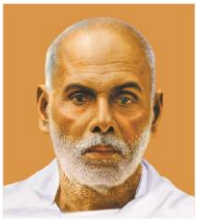

SUBJECT COVERAGE

THEORY

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

COURSE PLAN SCHEDULE

Name of the faculty	Nimisha M.K
Designation	Assistant Professor
Faculty department name	Computer Science and Engineering
Name of the course with course code	CST 205 OBJECT ORIENTED PROGRAMMING USING JAVA
Department to which this course is offered	Computer Science and Engineering
Semester	THIRD
Academic Year	2022-23

1. COURSE OVERVIEW

This course is to enable learners to solve problems by breaking it down to object level while designing software and to implement it using Java. This course covers Object Oriented Principles, Object Oriented Programming in Java, Inheritance, Exception handling, Event handling, multithreaded programming and working with window-based graphics. This course helps the learners to develop Desktop GUI Applications, Mobile applications, Enterprise Applications, Scientific Applications and Web based Applications.

2. COURSE OBJECTIVE

- To introduce basic concepts of object oriented design and programming in java.
- To give a thorough understanding of java languages
- To provide basic exposure to basic of multithreading, data connectivity etc.
- To impart the techniques of GUI based applications.

3. PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES

I. PROGRAM OUTCOMES

- ENGINEERING KNOWLEDGE
- PROBLEM ANALYSIS
- DESIGN / DEVELOPMENT OF SOLUTION
- CONDUCT INVESTIGATION OF COMPLEX PROBLEMS
- MODERN TOOL USAGE
- THE ENGINEER AND SOCIETY
- ENVIORNMENT AND SUSTAINABILITY
- ETHICS
- INDIVIDUAL AND TEAM WORK

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- COMUNICATION
- PROJECT MANAGEMENT AND FINANCE
- LIFE LONG LEARNING

II. PROGRAM SPECIFIC OUTCOME

- PSO1:-**Computer Science Specific Skills:** The ability to identify, analyze and design solutions for complex engineering problems in multidisciplinary areas by understanding the core principles and concepts of computer science.
- PSO2:-**Programming and Software Development Skills:** The ability to acquire programming efficiency by designing algorithms and applying standard practices in software project development to deliver quality software products.

4. COURSE OUTCOME

CO 1: To introduce basic concepts of object oriented design techniques and to understand the basis of java language.

CO 2: To get thorough knowledge of java languages and to utilize the features of java like datatypes, operators, control statements etc and how to use the object oriented concepts - classes, objects ,constructors, data hiding, inheritance and polymorphism.

CO 3: To understand the utilization of built in packages & interfaces and to illustrate how robust programs can be written in Java using exception handling mechanism , Input/ Output Streams and Files in Java to develop programs

CO 4: To provide basic exposure for the application of programs in Java using multithreading , String handling mechanism ,collection framework and event handling mechanisms.

CO 5: To impart the techniques of creating GUI based applications and database connectivity.

COURSE MAPPING

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

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5. SYLLABUS

Course No.	Course Name	L-T-P - Credits	Year of Introduction
CST 205	OBJECT ORIENTED PROGRAMMING USING JAVA	3-1-0-4	2019

COURSE PLAN

Module	Contents	Hours
I	Approaches to Software Design - Functional Oriented Design, Object Oriented Design, Case Study of Automated Fire Alarm System. Object Modeling Using Unified Modeling Language (UML) – Basic Object Oriented concepts, UML diagrams, Use case model, Class diagram, Interaction diagram, Activity diagram, State chart diagram. Introduction to Java - Java programming Environment and Runtime Environment, Development Platforms -Standard, Enterprise. Java Virtual Machine (JVM), Java compiler, Bytecode, Java applet, Java Buzzwords, Java program structure, Comments, Garbage Collection, Lexical Issues.	8
II	Primitive Data types - Integers, Floating Point Types, Characters, Boolean. Literals, Type Conversion and Casting, Variables, Arrays, Strings, Vector class. Operators - Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, Conditional (Ternary) Operator, Operator Precedence. Control Statements - Selection Statements, Iteration Statements and Jump Statements. Object Oriented Programming in Java - Class Fundamentals, Declaring Objects, Object Reference, Introduction to Methods, Constructors, ***this*** Keyword, Method Overloading, Using Objects as Parameters, Returning Objects, Recursion, Access Control, Static Members, Final Variables, Inner Classes, Command Line Arguments, Variable Length Arguments. Inheritance - Super Class, Sub Class, The	11

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	Keyword ***super***, protected Members, Calling Order of Constructors, Method Overriding, the Object class, Abstract Classes and Methods, using ***final*** with Inheritance.	
III	Packages and Interfaces - Defining Package, CLASSPATH, Access Protection, Importing Packages, Interfaces. Exception Handling - Checked Exceptions, Unchecked Exceptions, ***try*** Block and ***catch*** Clause, Multiple ***catch*** Clauses, Nested ***try*** Statements, ***thro throws*** and ***finally***. Input/output - I/O Basics, Reading Console Input, Writing Console Output, Print Writer Class, Object Streams and Serialization, Working with Files.	**8**
IV	Java Library - String Handling – String Constructors, String Length, Special String Operations - Character Extraction, String Comparison, Searching Strings, Modifying Strings, using valueOf(), Comparison of String Buffer and String. Collections framework - Collections overview, Collections Interfaces- Collection Interface, List Interface. Collections Class – ArrayList class. Accessing a Collection via an Iterator. Event handling - Event Handling Mechanisms, Delegation Event Model, Event Classes, Sources of Events, Event Listener Interfaces, Using the Delegation Model. Multithreaded Programming - The Java Thread Model, The Main Thread, Creating Thread, Creating Multiple Threads, Synchronization, Suspending, Resuming and Stopping Threads.	**10**
V	Swings fundamentals - Swing Key Features, Model View Controller (MVC), Swing Controls, Components and Containers, Swing Packages, Event Handling in Swings, Swing Layout Managers, Exploring Swings –JFrame, JLabel, The Swing Buttons, JTextField. Java DataBase Connectivity (JDBC) - JDBC overview, Creating and Executing Queries – create table, delete, insert, select.	**8**

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Text Book:

1. Herbert Schildt, Java: The Complete Reference, 8/e, Tata McGraw Hill, 2011.
2. Rajib Mall, Fundamentals of Software Engineering, 4th edition, PHI, 2014.
3. Paul Deitel, Harvey Deitel, Java How to Program, Early Objects 11th Edition, Pearson, 2018.

References:

1. Y. Daniel Liang, Introduction to Java Programming, 7/e, Pearson, 2013.
2. Nageswararao R., Core Java: An Integrated Approach, Dramatic Press, 2008.
3. Flanagan D., Java in A Nutshell, 5/e, O'Reilly, 2005.
4. Barclay K., J. Savage, Object Oriented Design with UML and Java, Elsevier, 2004.
5. Sierra K., Head First Java, 2/e, O'Reilly, 2005.
6. Balagurusamy E., Programming JAVA a Primer, 5/e, McGraw Hill, 2014.

6. TEACHING PLAN

MODULE 1

Sl No:	Topic	Hours	Mode of Delivery	Planned Date	Actual Date	Course Outcome Number
1.1	Approaches to Software Design- Functional Oriented Design, Object- Oriented Design, Case Study of Automated Fire Alarm System.	1	L	12/9/'22	12/9/'22.	1
1.2	Object Modeling Using UML – Basic object oriented concepts	1	L	13/9/'22	13/9/'22	1
1.3	Basic object oriented concepts	1	L	14/9/'22	13/9/'22	1
1.4	UML diagrams, Use case model	1	T	16/9/'22	14/9/'22	1
1.5	Class diagram, Interaction diagram	1	L	19/9/'22	14/9/'22	1
1.6	Activity diagram, State chart diagram	1	L	20/9/'22	16/9/'22	1
1.7	Java programming Environment and Runtime Environment, Development Platforms - Standard, Enterprise. JVM, Java compiler, Bytecode	1	L	23/9/'22	24/9/'22	1
1.8	Java applet, Java Buzzwords, Java program structure, Comments,	1	L	26/9/'22	26/9/'22	

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	Garbage Collection, Lexical Issues					
	MODULE 2					
2.1	Core Java Fundamentals: Primitive Data types, Integers, Floating Point Types, Characters, Boolean	1	L	30/9/'22	27/9/'22	2
2.2	Literals, Type Conversion and Casting, Variables, Arrays, Strings, Vector class.	1	L	3/10/'22	28/9/'22	2
2.3	Operators: Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, Conditional (Ternary) Operator, Operator Precedence.	1	L	10/10/'22	30/9/'22 1/10/'22	2
2.4	Control Statements: Selection Statements, Iteration Statements and Jump Statements.	1	T	10/10/'22	7/10/'22	2
2.5	Object Oriented Programming in Java: Class Fundamentals, Declaring Objects, Object Reference, Introduction to Methods	1	L	11/10/'22	10/10/'22	2
2.6	Constructors, ***this*** Keyword, Method Overloading, Using Objects as Parameters	1	L	12/10/'22	12/10/'22	2
2.7	Returning Objects, Recursion, Access Control, static Members	1	L	14/10/'22	13/10/'22	2
2.8	Final Variables, Inner Classes, Command-Line Arguments, Variable Length Arguments	1	L	17/10/'22	14/10/'22	2
2.9	Inheritance : Super class, Sub class, the keywords ***super***, ***protected*** Members,	1	L	18/10/'22 19/10/'22	17/10/'22	2
2.10	Calling Order of Constructors, Method Overriding, the Object class,	1	L	21/10/'22	18/10/'22	2

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2.11	Abstract Classes and Methods, Using ***final*** with Inheritance	1	L	25/10/'22 26/10/'22	19/10/'22	2
	MODULE 3					
3.1	Packages and Interfaces: Defining Package, CLASSPATH, Access Protection, Importing Packages	1	T	28/10/'22	21/10/'22	3
3.2	Interfaces	1	L	31/10/'22	26/10/'22 28/10/'22	3
3.3	Input / Output: I/O Basics, Reading Console Input, Writing Console Output, Print Writer Class	1	L	1/11/'22	2/11/'22	3
3.4	Object Streams and Serialization	1	L	2/11/'22	2/11/'22	3
3.5	Working with Files	1	L	4/11/'22	9/11/'22	3
3.6	Exception Handling: Checked Exceptions, Unchecked Exceptions, ***try*** Block and ***catch*** Clause	1	T	8/11/'22	31/10/'22 1/11/'22	3
3.7	Multiple ***catch*** Clauses, Nested ***try*** Statements	1	L	9/11/'22	26/11/'22	3
3.8	***throw***, ***throws*** and ***finally***	1	L	11/11/'22	28/11/'22	3
	MODULE 4					
4.1	Java Library: String Handling – String Constructors, String Length, Special String Operations	1	L	14/11/'22	29/11/'22	4
4.2	Character Extraction, String Comparison, Searching Strings, Modifying Strings Using valueOf( ), Comparison of String Buffer and String.	1	T	15/11/'22 16/11/'22	30/11/'22	4
4.3	Collections framework – Collections overview, Collections Interfaces- Collection Interface	1	L	18/11/'22	2/12/'22	4
4.4	List Interface, Collections Class – ArrayList Class	1	L	21/11/'22	2/12/'22	

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4.5	Accessing Collections via an Iterator.	1	L	22/11/22	3/12/'22	4
4.6	Event handling: Event Handling Mechanisms, Delegation Event Model	1	L	23/11/'22	5/12/'22	4
4.7	Delegation Event Model, Event Classes	1	L	25/11/'22	5/12/'22	4
4.8	Sources of Events, Event Listener Interfaces, Using the Delegation Model	1	L	29/11/'22 30/11/'22	6/12/'22	4
4.9	Multithreaded Programming: The Java Thread Model, The Main Thread, Creating Thread	1	T	2/12/'22	6/12/'22	4
4.10	Creating Multiple Threads, Synchronization, Suspending, Resuming and Stopping Threads.	1	L	5/12/'22	6/12/'22	4
	MODULE 5					
5.1	Swings fundamentals, Swing Key Features	1	T	6/12/'22	7/12/'22	5
5.2	MVC, Swing Controls, Components and Containers	1	L	7/12/'22	7/12/'22	5
5.3	Swing Packages, Event Handling in Swings.	1	L	9/12/'22	7/12/'22	5
5.4	Swing Layout Managers	1	L	12/12/'22	14/12/'22	5
5.5	Exploring Swings –JFrame, JLabel, The Swing Buttons, JTextField.	1	L	13/12/'22	14/12/'22	5
5.6	JDBC overview, Creating and Executing Queries create table, delete, insert, select (Basics only, DBMS course is not prerequisite).	1	T	14/12/'22 16/12/'22	15/12/'22	5
5.7	Creating and Executing Queries – create table, delete, insert, select.	1	L	19/12/'22 20/12/'22	15/12/'22	5
5.8	Creating and Executing Queries – create table, delete, insert, select.	1	T	21/12/'22.	16/12/'22 3/1/'23	5

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MODE OF DELIVERY: LECTURE / TUTORIAL / ASSIGNMENT / PRACTICAL

7. GRADING METHODS

Module	Series Test	Assignment	Class Test	Quiz	Tutorial
1	X				X
2	X				X
3	X				X
4	X				X
5	X				X

8. GAPS IN THE SYLLABUS

Sl No	Topic	Remedy	Affected CO	Affected PO	Affected PSO
1	HTML	learning materials	1,2,3,4,5	1,2,3,4,12	1

9. CONTENT BEYOND SYLLABUS

Sl No	Topic	Remedy	Affe cted CO	Affected PO	Affected PSO
1	Eclipse	Self study materials given.	1,5	1,2,3,4,12	1

10. SUBJECT HISTORY

- ✓ Year Of Introduction of the subject – 2019
- ✓ Faculty Handled Just before this time –Ms.NIMISHA M.K
- ✓ Pass Percentage during last three years – 62
- ✓ Target Pass Percentage – 69.6

11. Any other important matter to be brought into consideration:

Nil

Manual Prepared by:

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NIMISHA M.K
ASSISTANT PROFESSOR
DEPARTMENT OF CSE

Approved by:

VEENA K.K
ASSISTANT PROFESSOR
DEPARTMENT OF CSE

Dated signature of faculty member

31/8/'22.

Dated signature of Module Coordinator

31/8/22

Dated signature of HOD

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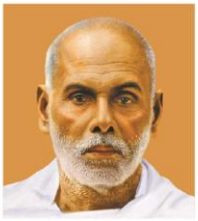

SUBJECT COVERAGE

LAB

SREE NARAYANA GURU COLLEGE OF ENGINEERING & TECHNOLOGY

DEPARTMENT OF MECHANICAL ENGINEERING

COURSE PLAN SCHEDULE – LABORATORY COURSE

Name of the faculty	**JACOB THOMAS**
Designation	**ASSISTANT PROFESSOR**
Faculty department name	**MECHANICAL DEPARTMENT**
Name of the course with course code	**MEL 332: COMPUTER AIDED DESIGN AND ANALYSIS LAB.**
Semester	**SIXTH**
Academic Year	**2022-2023**

1. **COURSE OVERVIEW:** - The course is designed to train students to have hand on experience on using various application software for design and analysis of any type of projects in the platform of mechanical engineering. Students will be introduced to a team working environment where they develop the necessary skills for planning, preparing and executing an engineering project.
2. **COURSE OBJECTIVE**

To introduce students to the basics and standards of engineering design and analysis related to machine components.

To make students familiarize with different solid modelling and analysis software.

To convey the principles and requirements of modelling and analysis of machine elements.

To introduce the preparation of part modelling and assembly modelling of machineries.

To introduce standard CAD packages to perform Finite Element Analysis of machine parts.

PROGRAM OUTCOMES AND PROGRAM SPECIFIC OUTCOMES

I. PROGRAM OUTCOMES

- ENGINEERING KNOWLEDGE
- PROBLEM ANALYSIS
- DESIGN / DEVELOPMENT OF SOLUTION
- CONDUCT INVESTIGATION OF COMPLEX PROBLEMS
- MODERN TOOL USAGE
- THE ENGINEER AND SOCIETY
- ENVIORNMENT AND SUSTAINABILITY
- ETHICS
- INDIVIDUAL AND TEAM WORK
- COMUNICATION
- PROJECT MANAGEMENT AND FINANCE
- LIFE LONG LEARNING

II. PROGRAM SPECIFIC OUTCOME

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PSO1: Develop and implement new ideas on product design and development with the help of CAD/CAM tools while ensuring best manufacturing practices
PSO2: Able to integrate and apply knowledge in the solution of interdisciplinary engineering problems.

3. COURSE OUTCOME

CO1: Gain working knowledge in Computer Aided Design and modelling procedures.
CO2: Gain knowledge in creating solid machinery parts.
CO3: Gain knowledge in assembling machine elements.
CO4: Gain working knowledge in Finite Element Analysis.
CO5: Solve simple structural, heat and fluid flow problems using standard software.

COURSE MAPPING

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

4. SYLLABUS

SL.NO	PART - A (Minimum 6 models)	COURSE OUTCOMES	HOURS
1	Creation of high end part models (minimum 2 models, Questions for examinations must not be taken from this portions)	CO1, CO2	6
2	Creating assembly models of Socket and spigot joint, Knuckle Joint, Rigid flange couplings, Bushed Pin flexible coupling, Plummer block, Single plate clutch and Cone friction clutch. Pipe joints, Screw jack, Tail stock etc. (minimum 4 models)	CO1, CO2, CO3	12
	PART – B (Minimum 6 problems)		
3	Structural analysis. (minimum 3 problems)	CO4, CO5	6
4	Thermal analysis. (minimum 2 problems)	CO4, CO5	3
5	Fluid flow analysis. (minimum 1 problem)	CO4, CO5	3

5. TEXT BOOKS:

1. Daryl Logan, A First course in Finite Element Method, Thomson Learning, 2007
2. David V Hutton, Fundamentals of Finite Element Analysis, Tata McGraw Hill,2003
3. Ibrahim Zeid, CAD/ CAM Theory and Practice, McGraw Hill, 2007
4. Mikell P. Groover and Emory W. Zimmer, CAD/ CAM – Computer aided design and manufacturing, Pearson Education,1987
5. T. R. Chandrupatla and A. D. Belagundu, Introduction to Finite Elements in Engineering, Pearson Education, 2012

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TEACHING PLAN

CYCLE 1				
Exp No:	**Planned Date**	**EXPERIMENT NAME**	**COURSE OUTCOME**	**Actual Date**
1	7/2/23	Part modelling	1,2	14/02/23
2	14/2/23	Part modelling	1,2	28/02/23
3	21/2/23	Gib and Cotter joint	1,2,3	07/03/23
4	28/2/23	Rigid flanged coupling	1,2,3	14/03/23
5	7/3/23	Knuckle joint assembly	1,2,3	21/03/23
6	14/3/23	Plummer block assembly	1,2,3	28/03/23
7	21/3/23	Structural analysis	4,5	04/04/23
8	28/3/23	Structural analysis	4,5	11/04/23
9	4/4/23	Structural analysis	4,5	11/03/23
10	11/4/23	Motion study of Screw and Nut	4,5	18/04/23
11	18/4/23	Thermal analysis	4,5	18/06/23
12	25/4/23	Fluid flow analysis	4,5	20/06/23

6. **Subject History**
   - ✓ Year Of Introduction of the lab – 2019
   - ✓ Faculty Handled Just before this time – Jacob Thomas
   - ✓ Pass Percentage during last three years – 100%
   - ✓ Target Pass Percentage – 100%
7. Any other important matter to be brought into consideration:

Manual Prepared by:

<JACOB THOMAS, AP ME>

Approved by: Athul Raj PP

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<, AP ME>

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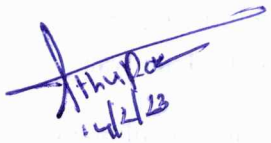
Dated signature of Module Coordinator 

Dated signature of HOD

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