

**SCMS SCHOOL OF ENGINEERING & TECHNOLOGY**

VIDYA NAGAR, KARUKUTTY, ERNAKULAM – 683576, PHONE: 0484-2882900, 2450330

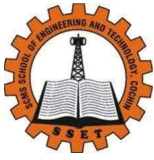
E-Mail: [sset@scmsgroup.org](mailto:sset@scmsgroup.org) Website: [www.scmsgroup.org/sset](http://www.scmsgroup.org/sset)

---

## **Criteria 2**

# **Teaching Learning and Evaluation**

*Criteria 2.6: Student Performance and Learning Outcomes*



# SCMS SCHOOL OF ENGINEERING & TECHNOLOGY

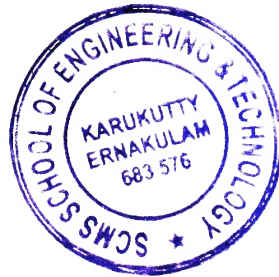
VIDYA NAGAR, KARUKUTTY, ERNAKULAM – 683576, PHONE: 0484-2882900, 2450330

E-Mail: [sset@scmsgroup.org](mailto:sset@scmsgroup.org) Website: [www.scmsgroup.org/sset](http://www.scmsgroup.org/sset)

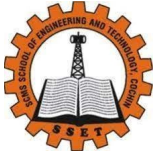
---

2.6.2 Attainment of POs and COs are evaluated.

Sl. No	Particulars
1	Sample Course Plan
2	Sample CO Mapped Question Paper
3	Sample CO Attainment Calculation Sheet
4	Sample PO Attainment Calculation Sheet
5	Exit Survey Analysis
6	PO Attainment Graph



  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576



# SCMS SCHOOL OF ENGINEERING & TECHNOLOGY

VIDYA NAGAR, KARUKUTTY, ERNAKULAM – 683576, PHONE: 0484-2882900, 2450330

E-Mail: [sset@scmsgroup.org](mailto:sset@scmsgroup.org) Website: [www.scmsgroup.org/sset](http://www.scmsgroup.org/sset)

---

## Sample Course Plan

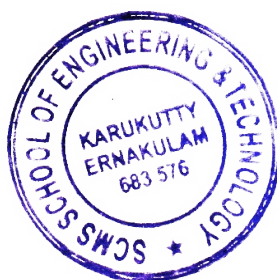
CST 205	OBJECT ORIENTED PROGRAMMING USING JAVA	CATEGORY	L	T	P	CREDIT	YEAR OF INTRODUCTION
			3	1	0		

**Preamble:** The purpose of 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.

**Prerequisite:** Topics covered under the course PROGRAMMING IN C (EST 102)

Course Outcomes: After the completion of the course the student will be able to

CO1	Write Java programs using the object oriented concepts - classes, objects, constructors, data hiding, inheritance and polymorphism (Cognitive Knowledge Level: <b>Apply</b> )
CO2	Utilise datatypes, operators, control statements, built in packages & interfaces, Input/ Output Streams and Files in Java to develop programs (Cognitive Knowledge Level: <b>Apply</b> )
CO3	Illustrate how robust programs can be written in Java using exception handling mechanism (Cognitive Knowledge Level: <b>Understand</b> )
CO4	Write application programs in Java using multithreading and database connectivity (Cognitive Knowledge Level: <b>Apply</b> )
CO5	Write Graphical User Interface based application programs by utilising event handling features and Swing in Java (Cognitive Knowledge Level: <b>Apply</b> )



*Principle*  
 PRINCIPAL  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576

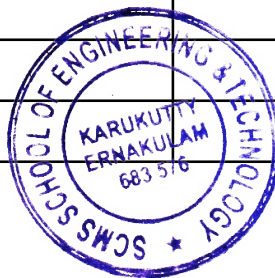
### Mapping of course outcomes with program outcomes

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	✓	✓	✓	✓								✓
CO2	✓	✓	✓	✓								✓
CO3	✓	✓	✓	✓						✓		✓
CO4	✓	✓	✓	✓								✓
CO5	✓	✓	✓	✓								✓

Abstract POs defined by National Board of Accreditation			
PO#	Broad PO	PO#	Broad PO
PO1	Engineering Knowledge	PO7	Environment and Sustainability
PO2	Problem Analysis	PO8	Ethics
PO3	Design/Development of solutions	PO9	Individual and team work
PO4	Conduct investigations of complex problems	PO10	Communication
PO5	Modern tool usage	PO11	Project Management and Finance
PO6	The Engineer and Society	PO12	Life long learning

### Assessment Pattern

Bloom's Category	Continuous Assessment Tests		End Semester Examination
	Test1 (Marks %)	Test2 (Marks %)	Marks (%)
Remember	30	30	30
Understand	30	30	30
Apply	40	40	40
Analyse			
Evaluate			
Create			



PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

## Mark Distribution

Total Marks	CIE Marks	ESE Marks	ESE Duration
150	50	100	3 hours

### Continuous Internal Evaluation Pattern:

Attendance : 10 marks

Continuous Assessment Tests : 25 marks

Continuous Assessment Assignment : 15 marks

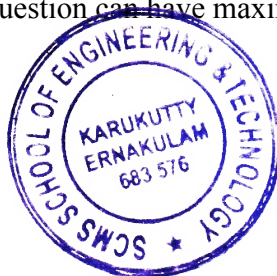
### Internal Examination Pattern:

Each of the two internal examinations has to be conducted out of 50 marks

First series test shall be preferably conducted after completing the first half of the syllabus and the second series test shall be preferably conducted after completing remaining part of the syllabus.

There will be two parts: Part A and Part B. Part A contains 5 questions (preferably, 2 questions each from the completed modules and 1 question from the partly covered module), having 3 marks for each question adding up to 15 marks for part A. Students should answer all questions from Part A. Part B contains 7 questions (preferably, 3 questions each from the completed modules and 1 question from the partly covered module), each with 7 marks. Out of the 7 questions in Part B, a student should answer any 5.

**End Semester Examination Pattern:** There will be two parts; Part A and Part B. Part A contains 10 questions with 2 questions from each module, having 3 marks for each question. Students should answer all questions. Part B contains 2 questions from each module of which a student should answer any one. Each question can have maximum 2 sub-divisions and carry 14 marks.



*[Signature]*  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

## SYLLABUS

### Object Oriented Programming Using Java

#### Module 1

##### Introduction:

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.

#### Module 2

##### Core Java Fundamentals:

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 Keyword *super*, protected Members, Calling Order of Constructors, Method Overriding, the Object class, Abstract Classes and Methods, using *final* with Inheritance.

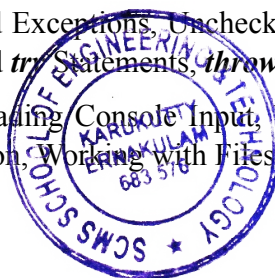
#### Module 3

##### More features of Java:

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, *throw*, *throws* and *finally*.

Input/Output - I/O Basics, Reading Console Input, Writing Console Output, PrintWriter Class, Object Streams and Serialization, Working with Files



PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

## Module 4

### Advanced features of Java:

Java Library - String Handling – String Constructors, String Length, Special String Operations - Character Extraction, String Comparison, Searching Strings, Modifying Strings, using valueOf(), Comparison of StringBuffer 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.

## Module 5

### Graphical User Interface and Database support of Java:

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.

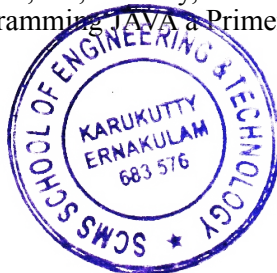
Java DataBase Connectivity (JDBC) - JDBC overview, Creating and Executing Queries – create table, delete, insert, select.

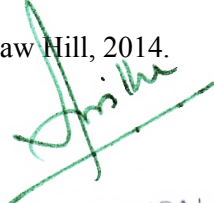
### Text Books:

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

### Reference Books:

1. Y. Daniel Liang, Introduction to Java Programming, 7/e, Pearson, 2013.
2. Nageswararao R., Core Java: An Integrated Approach, Dreamtech 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.



  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576



## Sample Course Level Assessment Questions

**Course Outcome1(CO1):** For the following passage develop UML diagrams and then implement it as a Java program in accordance with your UML design.

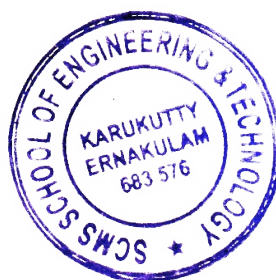
**Passage:** College Office collects semester fee and college bus fee for each student. A clerk at the college office collects the fees from each student. The bus fee is calculated depending on the distance of the corresponding bus stop from the college. The semester fee varies depending upon the semester as well as branch of each student. Students are supposed to pay the fees in full. Economically backward students are eligible for 50% discount in semester fee. The consolidated fees receipt is issued to each student by the clerk, which contains the student name, admission number, semester and branch of student along with details of fees collected. Students can log in and view the details of fees remitted and dues if any. The system allows students and clerk level login to the system. Clerk is able to view reports of each class showing status of fees payment of each student.

**Course Outcome 2(CO2):** Write a Java program to evaluate a post fix expression containing two operands and a single operator using stack. Stack should be implemented as a separate entity so as to reflect OOP concepts.

**Course Outcome 3(CO3):** Write a program to demonstrate the start, run, sleep and join methods in Thread class.

**Course Outcome 4(CO4):** Write a GUI based program with separate buttons to add, delete and display student details i.e. name, student ID, current semester and branch of study based on student ID.

**Course Outcome 5(CO5):** Using Swing create a JFrame with a JLabel and two JButtons. Set the texts of JButtons as “Yes” and “No” respectively. Set the JLabel’s text to the text of the button currently being pressed. Initially the JLabel’s text is blank.



  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

## Model Question Paper

QP CODE:

PAGES:3

Reg No: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

**THIRD SEMESTER B.TECH DEGREE EXAMINATION, MONTH & YEAR**

**Course Code: CST 205**

**Course Name: Object Oriented Programming using Java**

**Max.Marks:100**

**Duration: 3 Hours**

### PART A

**Answer all Questions. Each question carries 3 Marks**

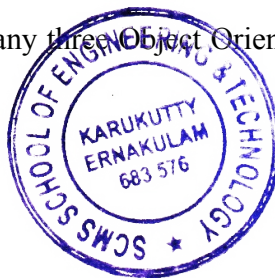
1. Briefly explain the portable, secure and robust features of Java.
2. Describe the concepts of object and class with a suitable Java program.
3. Explain the concept of method overriding with an example.
4. What is the use of the keyword *final* in Java?
5. Explain the concept of streams.
6. Explain any two applications of Serialization.
7. Distinguish the usage of “==” and *equals()* method when comparing String type?
8. What are Collections in Java? Explain any one Collection interface in Java.
9. Explain any two properties of Swing components in Java.
10. Explain JLabel component. With suitable examples explain any two of its constructors.

### Part B

**Answer any one question completely from each module**

11.

- (a) Describe in detail any three Object Oriented Programming principles. Illustrate with suitable examples.



*[Signature]*  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

(9)

(b) What is Java Runtime Environment? What is the role of Java Virtual Machine in it? (5)

OR

12.

(a) Compare and contrast Java standard edition and Java enterprise edition. (5)

(b) Why is Java considered to be platform independent? What is the role of Bytecode in making Java platform independent? (9)

13.

(a) Explain in detail the primitive data types in Java. (8)

(b) Explain automatic type conversion in Java with an example. What are the two conditions required for it? (6)

OR

14.

(a) Using a suitable Java program explain the difference between *private* and *public* members in the context of inheritance. (8)

(b) Is it possible to use the keyword *super* within a static method? Give justification for your answer. (6)

15.

(a) Explain in detail about byte streams and character streams with suitable code samples. (6)

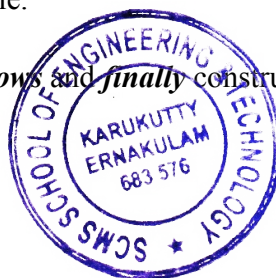
(b) Describe in detail about exception handling, *try* block and *catch* clause with the help of a suitable Java program. (8)

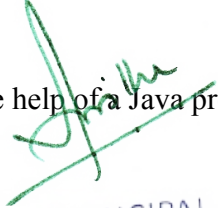
OR

16.

(a) Explain object streams in Java. Explain the role of Serializable interface with a suitable code sample. (8)

(b) Explain *throw*, *throws* and *finally* constructs with the help of a Java program. (6)



  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

17.

- (a) Describe in detail the creation of a thread using the Runnable interface and the Thread class with suitable examples. (10)
- (b) Explain List Interface. Mention any two exceptions thrown by its methods. (4)

**OR**

18.

- (a) Explain in detail the Delegation Event model for event handling in Java. (7)
- (b) Write a simple program by extending appropriate class to demonstrate the working of threads in java. (7)

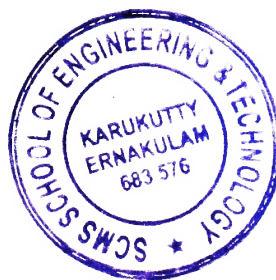
19.

- (a) Write a Java program to demonstrate the use of JLabel and JButton by adding them to JFrame. (7)
- (b) Explain step-by-step procedure of using Java DataBase Connectivity in Java programs. (7)

**OR**

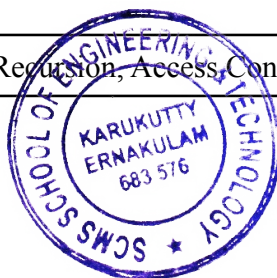
20.

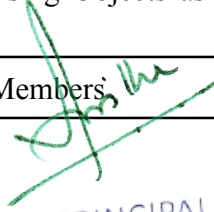
- (a) Explain the class hierarchy of Java Swing components. (7)
- (b) Write a Java Program to create a student table and to add student details to it using JDBC. (7)



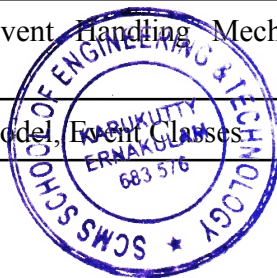
  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

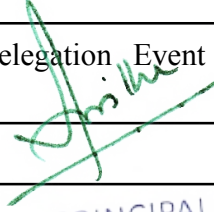
<b>Teaching Plan</b>		
<b>Module 1 : Introduction</b>		(8 hours)
1.1	Approaches to Software Design- Functional Oriented Design, Object-Oriented Design, Case Study of Automated Fire Alarm System.	1 hour
1.2	Object Modeling Using UML – Basic object oriented concepts	1 hour
1.3	Basic object oriented concepts	1 hour
1.4	UML diagrams, Use case model	1 hour
1.5	Class diagram, Interaction diagram	1 hour
1.6	Activity diagram, State chart diagram	1 hour
1.7	Java programming Environment and Runtime Environment, Development Platforms -Standard, Enterprise. JVM, Java compiler, Bytecode	1 hour
1.8	Java applet, Java Buzzwords, Java program structure, Comments, Garbage Collection, Lexical Issues	1 hour
<b>Module 2: Core Java Fundamentals</b>		(11 hours)
2.1	Core Java Fundamentals: Primitive Data types, Integers, Floating Point Types, Characters, Boolean	1 hour
2.2	Literals, Type Conversion and Casting, Variables, Arrays, Strings, Vector class.	1 hour
2.3	Operators: Arithmetic Operators, Bitwise Operators, Relational Operators, Boolean Logical Operators, Assignment Operator, Conditional (Ternary) Operator, Operator Precedence.	1 hour
2.4	Control Statements: Selection Statements, Iteration Statements and Jump Statements.	1 hour
2.5	Object Oriented Programming in Java: Class Fundamentals, Declaring Objects, Object Reference, Introduction to Methods	1 hour
2.6	Constructors, <i>this</i> Keyword, Method Overloading, Using Objects as Parameters	1 hour
2.7	Returning Objects, Recursion, Access, Control, static Members	1 hour



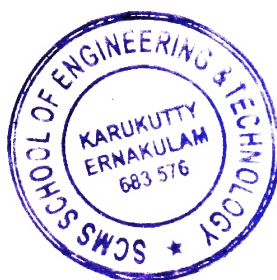
  
 PRINCIPAL  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576

2.8	Final Variables, Inner Classes, Command-Line Arguments, Variable Length Arguments	1 hour
2.9	Inheritance : Super class, Sub class, the keywords <i>super</i> , <i>protected</i> Members,	1 hour
2.10	Calling Order of Constructors, Method Overriding, the Object class,	1 hour
2.11	Abstract Classes and Methods, Using <i>final</i> with Inheritance	1 hour
<b>Module 3: More features of Java</b>		(8 hours)
3.1	Packages and Interfaces: Defining Package, CLASSPATH, Access Protection, Importing Packages	1 hour
3.2	Interfaces	1 hour
3.3	Input / Output: I/O Basics, Reading Console Input, Writing Console Output, PrintWriter Class	1 hour
3.4	Object Streams and Serialization	1 hour
3.5	Working with Files	1 hour
3.6	Exception Handling: Checked Exceptions, Unchecked Exceptions, <i>try</i> Block and <i>catch</i> Clause	1 hour
3.7	Multiple <i>catch</i> Clauses, Nested <i>try</i> Statements	1 hour
3.8	<i>throw</i> , <i>throws</i> and <i>finally</i>	1 hour
<b>Module 4: Advanced features of Java</b>		(10 hours)
4.1	Java Library: String Handling – String Constructors, String Length, Special String Operations	1hour
4.2	Character Extraction, String Comparison, Searching Strings, Modifying Strings Using <code>valueOf( )</code> , Comparison of String Buffer and String.	1hour
4.3	Collections framework – Collections overview, Collections Interfaces-Collection Interface	1hour
4.4	List Interface, Collections Class – ArrayList Class	1hour
4.5	Accessing Collections via an Iterator.	1hour
4.6	Event handling: Event Handling Mechanisms, Delegation Event Model	1hour
4.7	Delegation Event Model, Event Classes	1hour

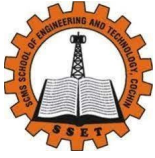


  
 PRINCIPAL  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576

4.8	Sources of Events, Event Listener Interfaces, Using the Delegation Model	1 hour
4.9	Multithreaded Programming: The Java Thread Model, The Main Thread, Creating Thread	1 hour
4.10	Creating Multiple Threads, Synchronization, Suspending, Resuming and Stopping Threads.	1 hour
<b>Module 5: Graphical User Interface and Database support of Java</b>		(8 hours)
5.1	Swings fundamentals, Swing Key Features	1 hour
5.2	MVC, Swing Controls, Components and Containers	1 hour
5.3	Swing Packages, Event Handling in Swings.	1 hour
5.4	Swing Layout Managers	1 hour
5.5	Exploring Swings –JFrame, JLabel, The Swing Buttons, JTextField.	1 hour
5.6	JDBC overview, Creating and Executing Queries – create table, delete, insert, select (Basics only, DBMS course is not a prerequisite).	1 hour
5.7	Creating and Executing Queries – create table, delete, insert, select.	1 hour
5.8	Creating and Executing Queries – create table, delete, insert, select.	1 hour



*Anisika*  
 PRINCIPAL  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576



**SCMS SCHOOL OF ENGINEERING & TECHNOLOGY**

VIDYA NAGAR, KARUKUTTY, ERNAKULAM – 683576, PHONE: 0484-2882900, 2450330

E-Mail: [sset@scmsgroup.org](mailto:sset@scmsgroup.org) Website: [www.scmsgroup.org/sset](http://www.scmsgroup.org/sset)

---

## Sample CO Mapped Question Paper



**SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY**  
**VIDYA NAGAR, PALISSERY, KARUKUTTY.**

Internal Test –11		Regulations - 2019	
Programme: B. Tech CS		Max. Marks: 50	
<b>Course Code &amp; Title: CST401 ARTIFICIAL INTELLIGENCE</b>			
Batch: 2020	Class: 7CS1 & CS2	Date: 27.11.2023	Time: 9:30 - 11:30 AM
Knowledge Levels (KL)	K1 - Remembering	K3 - Applying	K5 – Evaluating
	K2 - Understanding	K4 – Analysing	K6 – Creating

Answer all questions

Marks

CO

KL

**PART A (6 \*3=18 Marks)**

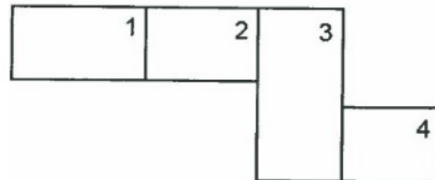
- |   |   |     |    |
|---|---|-----|----|
| 1 What are the components of a Constraint Satisfaction Problem? Illustrate with an example.   | 3 | CO3 | K2 |
| 2 Formulate the following problem as a CSP. Class scheduling: There is a fixed number of professors and classrooms, a list of classes to be offered, and a list of possible time slots for classes. Each professor has a set of classes that he or she can teach. | 3 | CO3 | K3 |
| 3 Explain why it is a good heuristic to choose the variable that is most constrained, but the value that is least constraining in a CSP search  | 3 | CO3 | K3 |
| 4 Explain node consistency with an example  | 3 | CO4 | K3 |
| 5 What is a knowledge based agent? How does it work?  | 3 | CO4 | K2 |
| 6 Write the negation, inverse, converse and contrapositive of the statement “ <b>If my car is in repair shop, then i cannot go to class</b> ”   | 3 | CO4 | K3 |

**PART B (2 \* 16 = 32 Marks)**

- |  |   |     |    |
|--|---|-----|----|
| 7 (a) Solve the following crypt arithmetic problem by hand, using the strategy of backtracking with forward checking.<br>SEND + MORE = MONEY | 8 | CO3 | K3 |
| (b) Explain map coloring problem using the strategy of backtracking and forward checking   | 8 | CO3 | K3 |

**OR**

- 8 A university has decided to open a new zoo in Killian Court. They have obtained seven animals and built four enclosures. Because there are more animals than enclosures, some animals have to be in the same enclosures as others. However, the animals are very picky about who they live with. The administration is having trouble assigning animals to enclosures, just as they often have trouble assigning students to residences. They have asked you to plan where each animal goes. The animals chosen are a LION, ANTELOPE, HYENA, EVIL LION, HORNBILL, MEERKAT, and BOAR. They have given you the plans of the zoo layout.



Each numbered area is a zoo enclosure. Multiple animals can go into the same enclosure, and not all enclosures have to be filled.

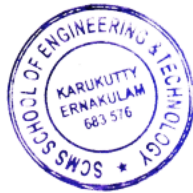
Each animal has restrictions about where it can be placed.

1. The LION and the EVIL LION hate each other, and do not want to be in the same enclosure.
2. The MEERKAT and BOAR are best friends, and have to be in the same enclosure.
3. The HYENA smells bad. Only the EVIL LION will share his enclosure.
4. The EVIL LION wants to eat the MEERKAT, BOAR, and HORNBILL.
5. The LION and the EVIL LION want to eat the ANTELOPE so badly that the ANTELOPE cannot be in either the same enclosure or in an enclosure adjacent to the LION or EVIL LION.
6. The LION annoys the HORNBILL, so the HORNBILL doesn't want to be in the LION's enclosure.
7. The LION is king, so he wants to be in enclosure 1.

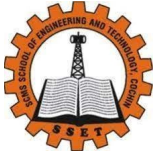
- 9(a) For each pair of atomic sentences, find the most general unifier if it exists: **8** **CO4** **K3**
- a)  $P(A, B, B), P(x, y, z)$ .
  - b)  $Q(y, G(A, B)), Q(G(x, x), y)$ .
  - c)  $\text{Older}(\text{Father}(y), y), \text{Older}(\text{Father}(x), \text{John})$
  - d)  $\text{Knows}(\text{Father}(y), y), \text{Knows}(x, x)$
- (b) Explain backward chaining algorithm with an example **8** **CO4** **K2**

**OR**

- 10 (a) Convert the following sentences into first order logic: 11 CO4 K3  
Everyone who loves all animals is loved by someone.  
Anyone who kills an animal is loved by no one.  
Jack loves all animals.  
Either Jack or Curiosity killed the cat, who is named Tuna.  
Give a resolution proof to answer the question  
“Did Curiosity kill the cat? “
- (b) Convert the following sentences into first order logic, FOL and corresponding Conjunctive Normal Form, CNF: 5 CO4 K3  
a. John likes all kind of food.  
b. Apple and vegetable are food  
c. Anything anyone eats and not killed is food.  
d. Anil eats peanuts and still alive  
e. Harry eats everything that Anil eats.



  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576



**SCMS SCHOOL OF ENGINEERING & TECHNOLOGY**

VIDYA NAGAR, KARUKUTTY, ERNAKULAM – 683576, PHONE: 0484-2882900, 2450330

E-Mail: [sset@scmsgroup.org](mailto:sset@scmsgroup.org) Website: [www.scmsgroup.org/sset](http://www.scmsgroup.org/sset)

---

## Sample CO Attainment Calculation Sheet

**SCMS SCHOOL OF ENGINEERING & TECHNOLOGY, KARUKUTTY**  
**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**  
**ASSESSMENT OF ATTAINMENT OF COURSE OUTCOMES**

**Course Code & Name**                    CIAL INTELLIGENCE  
**Faculty**                                    A K NAMBIAR  
**Academic Year**                        2023-2024  
**Class**                                        :S8CS2  
**Regulation**                                :2019

Course Outcomes			CST401.1			CST401.2			CST401.3			CST401.4		CST401.5			Univ ersity exam
			80	20	100	80	20	100	80	20	100	100	100	60	40	100	
S.NO	NAME	Reg No	IAT - I	ASSIGNMENT I	TOTAL	IAT - I	ASSIGNMENT II	TOTAL	IAT - II	ASSIGNMENT II	TOTAL	IAT - II	TOTAL	Class Test	Seminar	TOTAL	University Grade
1	IJAS AHAMMED	SCM20CS063	38.4	20.0	<b>58.4</b>	50.0	20.0	<b>70.0</b>	60.8	20.0	<b>80.8</b>	68.0	<b>68.0</b>	51.6	40.0	<b>91.6</b>	P
2	ISHA KRISHNA V U	SCM20CS064	36.8	20.0	<b>56.8</b>	64.0	20.0	<b>84.0</b>	44.8	20.0	<b>64.8</b>	28.0	<b>28.0</b>	49.2	40.0	<b>89.2</b>	P
3	JEAN JACOB RAJESH	SCM20CS065	67.2	20.0	<b>87.2</b>	70.4	20.0	<b>90.4</b>	70.4	20.0	<b>90.4</b>	46.0	<b>46.0</b>	19.2	40.0	<b>59.2</b>	A+
4	JEEVA JOSE	SCM20CS066	36.8	20.0	<b>56.8</b>	64.0	20.0	<b>84.0</b>	60.8	20.0	<b>80.8</b>	20.0	<b>20.0</b>	24.0	40.0	<b>64.0</b>	P
5	JEFIN ANTONY JOY	SCM20CS067	54.4	20.0	<b>74.4</b>	48.0	20.0	<b>68.0</b>	48.0	20.0	<b>68.0</b>	64.0	<b>64.0</b>	36.0	40.0	<b>76.0</b>	P
6	JENNIFER PINTO	SCM20CS068	33.6	20.0	<b>53.6</b>	48.0	20.0	<b>68.0</b>	48.0	20.0	<b>68.0</b>	64.0	<b>64.0</b>	36.0	40.0	<b>76.0</b>	C
7	JESTEEN FINU BABU	SCM20CS069	44.8	20.0	<b>64.8</b>	54.4	20.0	<b>74.4</b>	60.8	20.0	<b>80.8</b>	36.0	<b>36.0</b>	31.2	40.0	<b>71.2</b>	P
8	JESVIN P S	SCM20CS070	46.4	20.0	<b>66.4</b>	41.6	20.0	<b>61.6</b>	36.8	20.0	<b>56.8</b>	52.0	<b>52.0</b>	28.8	40.0	<b>68.8</b>	P
9	JOEL JOBY	SCM20CS071	36.8	20.0	<b>56.8</b>	64.0	20.0	<b>84.0</b>	49.6	20.0	<b>69.6</b>	48.0	<b>48.0</b>	43.2	40.0	<b>83.2</b>	D
10	JOHN VITHAYATHIL	SCM20CS072	54.4	20.0	<b>74.4</b>	48.0	20.0	<b>68.0</b>	54.4	20.0	<b>74.4</b>	26.0	<b>26.0</b>	24.0	40.0	<b>64.0</b>	D
11	KALA ARUN KUMAR	SCM20CS073	36.8	0.0	<b>36.8</b>	64.0	20.0	<b>84.0</b>	38.4	20.0	<b>58.4</b>	12.0	<b>12.0</b>	28.8	40.0	<b>68.8</b>	B
12	KARAN BAIJU	SCM20CS074	54.4	20.0	<b>74.4</b>	48.0	20.0	<b>68.0</b>	43.2	20.0	<b>63.2</b>	44.0	<b>44.0</b>	55.2	40.0	<b>95.2</b>	P

13	KAVYA AJAY	SCM20CS075	49.6	20.0	<b>69.6</b>	65.6	20.0	<b>85.6</b>	67.2	20.0	<b>87.2</b>	72.0	<b>72.0</b>	24.0	40.0	<b>64.0</b>	B
14	KRITHIKA S	SCM20CS076	38.4	20.0	<b>58.4</b>	32.0	20.0	<b>52.0</b>	44.8	20.0	<b>64.8</b>	28.0	<b>28.0</b>	0.0	40.0	<b>40.0</b>	C
15	LAKSHMI H	SCM20CS077	36.8	20.0	<b>56.8</b>	64.0	20.0	<b>84.0</b>	16.0	20.0	<b>36.0</b>	4.0	<b>4.0</b>	0.0	40.0	<b>40.0</b>	F
16	LAKSHMI SANTHOSH	SCM20CS078	54.4	20.0	<b>74.4</b>	49.0	20.0	<b>69.0</b>	19.2	20.0	<b>39.2</b>	4.0	<b>4.0</b>	36.0	40.0	<b>76.0</b>	D
17	LENITA BIJU	SCM20CS079	17.6	20.0	<b>37.6</b>	68.8	20.0	<b>88.8</b>	48.0	20.0	<b>68.0</b>	72.0	<b>72.0</b>	38.4	40.0	<b>78.4</b>	A+
18	MARIYA LAVEENA ROSE P G	SCM20CS080	41.6	20.0	<b>61.6</b>	50.0	20.0	<b>70.0</b>	64.0	20.0	<b>84.0</b>	32.0	<b>32.0</b>	42.0	40.0	<b>82.0</b>	B
19	MEENAKSHY R NAMBIAR	SCM20CS081	40.0	20.0	<b>60.0</b>	49.0	20.0	<b>69.0</b>	73.6	20.0	<b>93.6</b>	52.0	<b>52.0</b>	52.8	40.0	<b>92.8</b>	A
20	MERIN PAPPACHAN	SCM20CS082	35.2	20.0	<b>55.2</b>	60.8	20.0	<b>80.8</b>	67.2	20.0	<b>87.2</b>	56.0	<b>56.0</b>	45.6	40.0	<b>85.6</b>	A
21	M M POOJAA	SCM20CS083	40.0	20.0	<b>60.0</b>	41.6	20.0	<b>61.6</b>	64.0	20.0	<b>84.0</b>	28.0	<b>28.0</b>	33.6	40.0	<b>73.6</b>	B
22	MOHAMED SINAN BIN ANWAR	SCM20CS084	28.8	0.0	<b>28.8</b>	49.0	20.0	<b>69.0</b>	64.0	20.0	<b>84.0</b>	26.0	<b>26.0</b>	45.6	40.0	<b>85.6</b>	P
23	MOHAMMAD SAFWAN	SCM20CS085	35.2	20.0	<b>55.2</b>	54.4	20.0	<b>74.4</b>	57.6	20.0	<b>77.6</b>	56.0	<b>56.0</b>	55.2	40.0	<b>95.2</b>	A+
24	MOHAMMED IMRAN T M K	SCM20CS086	25.6	0.0	<b>25.6</b>	41.6	20.0	<b>61.6</b>	32.0	20.0	<b>52.0</b>	12.0	<b>12.0</b>	55.2	40.0	<b>95.2</b>	C
25	MOHAMMED JASSIM	SCM20CS087	40.0	20.0	<b>60.0</b>	48.0	20.0	<b>68.0</b>	64.0	20.0	<b>84.0</b>	36.0	<b>36.0</b>	40.8	40.0	<b>80.8</b>	C
26	MOHAMMED ZIYAD	SCM20CS088	41.6	20.0	<b>61.6</b>	49.0	20.0	<b>69.0</b>	44.8	20.0	<b>64.8</b>	24.0	<b>24.0</b>	48.0	40.0	<b>88.0</b>	B
27	MUHAMMAD FAZAL	SCM20CS089	28.8	20.0	<b>48.8</b>	36.8	20.0	<b>56.8</b>	38.4	20.0	<b>58.4</b>	32.0	<b>32.0</b>	55.2	40.0	<b>95.2</b>	P
28	MUHAMMED ALKAZIM S	SCM20CS090	11.2	20.0	<b>31.2</b>	49.0	20.0	<b>69.0</b>	60.8	20.0	<b>80.8</b>	34.0	<b>34.0</b>	38.4	40.0	<b>78.4</b>	C+
29	M V AMAL KRISHNAN	SCM20CS091	9.6	20.0	<b>29.6</b>	33.6	20.0	<b>53.6</b>	32.0	20.0	<b>52.0</b>	0.0	<b>0.0</b>	55.2	40.0	<b>95.2</b>	F
30	NIKHIL BIJO	SCM20CS092	28.8	20.0	<b>48.8</b>	36.8	20.0	<b>56.8</b>	51.2	20.0	<b>71.2</b>	24.0	<b>24.0</b>	43.2	40.0	<b>83.2</b>	F
31	NIKHIL VINAYAN	SCM20CS093	28.8	20.0	<b>48.8</b>	36.8	20.0	<b>56.8</b>	59.2	20.0	<b>79.2</b>	8.0	<b>8.0</b>	55.2	40.0	<b>95.2</b>	P
32	NITHIN S PUTHUSSERY	SCM20CS094	32.0	20.0	<b>52.0</b>	32.0	20.0	<b>52.0</b>	57.6	20.0	<b>77.6</b>	16.0	<b>16.0</b>	40.8	40.0	<b>80.8</b>	P
33	NORA RAJU T	SCM20CS095	48.0	20.0	<b>68.0</b>	60.8	20.0	<b>80.8</b>	76.8	20.0	<b>96.8</b>	72.0	<b>72.0</b>	33.6	40.0	<b>73.6</b>	B
34	PARVATHY NANDAKUMAR	SCM20CS096	27.2	20.0	<b>47.2</b>	43.2	20.0	<b>63.2</b>	76.8	20.0	<b>96.8</b>	88.0	<b>88.0</b>	19.2	40.0	<b>59.2</b>	B+
35	PARVATHY UDAYAN	SCM20CS097	44.8	20.0	<b>64.8</b>	44.8	20.0	<b>64.8</b>	64.0	20.0	<b>84.0</b>	44.0	<b>44.0</b>	52.8	40.0	<b>92.8</b>	B+
36	P K PRANAV SATHISH	SCM20CS098	49.6	20.0	<b>69.6</b>	64.0	20.0	<b>84.0</b>	48.0	20.0	<b>68.0</b>	36.0	<b>36.0</b>	45.6	40.0	<b>85.6</b>	D
37	POOJA R MENON	SCM20CS099	48.0	20.0	<b>68.0</b>	43.2	20.0	<b>63.2</b>	1.6	20.0	<b>21.6</b>	28.0	<b>28.0</b>	55.2	40.0	<b>95.2</b>	C+
38	PRASHOBH C P	SCM20CS100	20.8	20.0	<b>40.8</b>	49.0	20.0	<b>69.0</b>	38.4	20.0	<b>58.4</b>	36.0	<b>36.0</b>	40.8	40.0	<b>80.8</b>	P
39	RAHANA PA	SCM20CS101	27.2	20.0	<b>47.2</b>	43.2	20.0	<b>63.2</b>	40.0	20.0	<b>60.0</b>	34.0	<b>34.0</b>	48.0	40.0	<b>88.0</b>	C+
40	RAHUL S MENON	SCM20CS102	44.8	20.0	<b>64.8</b>	44.8	20.0	<b>64.8</b>	51.2	20.0	<b>71.2</b>	32.0	<b>32.0</b>	33.6	40.0	<b>73.6</b>	C+
41	RAICHEL MONCY	SCM20CS103	49.6	20.0	<b>69.6</b>	64.0	20.0	<b>84.0</b>	35.2	20.0	<b>55.2</b>	32.0	<b>32.0</b>	60.0	40.0	<b>100.0</b>	C+
42	RAMSANKAR PALLIKKARA	SCM20CS104	11.2	20.0	<b>31.2</b>	49.0	20.0	<b>69.0</b>	51.2	20.0	<b>71.2</b>	32.0	<b>32.0</b>	45.6	40.0	<b>85.6</b>	P
43	RANSIF K MANAF	SCM20CS105	28.8	20.0	<b>48.8</b>	49.0	20.0	<b>69.0</b>	57.6	20.0	<b>77.6</b>	40.0	<b>40.0</b>	36.0	40.0	<b>76.0</b>	P

44	RICHU SUSANNA SHERRY	SCM20CS106	48.0	20.0	<b>68.0</b>	43.2	20.0	<b>63.2</b>	44.8	20.0	<b>64.8</b>	38.0	<b>38.0</b>	36.0	40.0	<b>76.0</b>	D
45	RIHAN SAJEER	SCM20CS107	49.6	20.0	<b>69.6</b>	48.0	20.0	<b>68.0</b>	67.2	20.0	<b>87.2</b>	56.0	<b>56.0</b>	48.0	40.0	<b>88.0</b>	B
46	ROHITH P LIJU	SCM20CS108	40.0	20.0	<b>60.0</b>	48.0	20.0	<b>68.0</b>	51.2	20.0	<b>71.2</b>	48.0	<b>48.0</b>	31.2	40.0	<b>71.2</b>	P
47	ROSHNA K R	SCM20CS109	46.4	20.0	<b>66.4</b>	59.2	20.0	<b>79.2</b>	54.4	20.0	<b>74.4</b>	78.0	<b>78.0</b>	43.2	40.0	<b>83.2</b>	B
48	SAAJID V BASHEER	SCM20CS110	27.2	20.0	<b>47.2</b>	38.4	20.0	<b>58.4</b>	57.6	20.0	<b>77.6</b>	72.0	<b>72.0</b>	28.8	40.0	<b>68.8</b>	B+
49	SAHENA SALIM	SCM20CS111	56.0	20.0	<b>76.0</b>	52.8	20.0	<b>72.8</b>	70.4	20.0	<b>90.4</b>	64.0	<b>64.0</b>	0.0	40.0	<b>40.0</b>	S
50	SANDO SHAJU	SCM20CS112	40.0	20.0	<b>60.0</b>	48.0	20.0	<b>68.0</b>	22.4	20.0	<b>42.4</b>	4.0	<b>4.0</b>	4.8	40.0	<b>44.8</b>	F
51	SANDRA SATHYAN M	SCM20CS113	52.8	20.0	<b>72.8</b>	46.4	20.0	<b>66.4</b>	68.8	20.0	<b>88.8</b>	74.0	<b>74.0</b>	38.4	40.0	<b>78.4</b>	C
52	SAVIO VINU ABRAHAM	SCM20CS114	46.4	20.0	<b>66.4</b>	59.2	20.0	<b>79.2</b>	3.2	20.0	<b>23.2</b>	4.0	<b>4.0</b>	50.4	40.0	<b>90.4</b>	D
53	SEBIN TOMY	SCM20CS115	27.2	20.0	<b>47.2</b>	38.4	20.0	<b>58.4</b>	38.4	20.0	<b>58.4</b>	36.0	<b>36.0</b>	60.0	40.0	<b>100.0</b>	A+
54	SHIVADUTH S THAMPI	SCM20CS116	16.0	20.0	<b>36.0</b>	51.2	20.0	<b>71.2</b>	44.8	20.0	<b>64.8</b>	24.0	<b>24.0</b>	45.6	40.0	<b>85.6</b>	D
55	SHIVANG VIDYADHARAN	SCM20CS117	40.0	20.0	<b>60.0</b>	25.6	20.0	<b>45.6</b>	25.6	20.0	<b>45.6</b>	14.0	<b>14.0</b>	52.8	40.0	<b>92.8</b>	P
56	SHOUN BENNIS	SCM20CS118	40.0	20.0	<b>60.0</b>	48.0	20.0	<b>68.0</b>	60.8	20.0	<b>80.8</b>	60.0	<b>60.0</b>	21.6	40.0	<b>61.6</b>	C
57	SHREYA SAHAJAN	SCM20CS119	8.0	20.0	<b>28.0</b>	49.0	20.0	<b>69.0</b>	62.4	20.0	<b>82.4</b>	20.0	<b>20.0</b>	38.4	40.0	<b>78.4</b>	P
58	SIDHARTH N S	SCM20CS120	36.8	20.0	<b>56.8</b>	45.0	20.0	<b>65.0</b>	44.8	20.0	<b>64.8</b>	38.0	<b>38.0</b>	28.8	40.0	<b>68.8</b>	P
59	SOORAJ S	SCM20CS121	41.6	0.0	<b>41.6</b>	54.4	20.0	<b>74.4</b>	51.2	0.0	<b>51.2</b>	44.0	<b>44.0</b>	26.4	0.0	<b>26.4</b>	C+
60	SOORYA KIRON JOHN	SCM20CS122	35.2	20.0	<b>55.2</b>	8.0	20.0	<b>28.0</b>	48.0	20.0	<b>68.0</b>	16.0	<b>16.0</b>	50.4	40.0	<b>90.4</b>	C
61	SOUMYA SUNIL	SCM20CS123	40.0	20.0	<b>60.0</b>	35.2	20.0	<b>55.2</b>	44.8	20.0	<b>64.8</b>	38.0	<b>38.0</b>	60.0	40.0	<b>100.0</b>	B+
62	SOURAV K	SCM20CS124	32.0	20.0	<b>52.0</b>	51.2	20.0	<b>71.2</b>	60.8	20.0	<b>80.8</b>	56.0	<b>56.0</b>	45.6	40.0	<b>85.6</b>	S
63	SREEDARSANA AJAY	SCM20CS125	33.6	20.0	<b>53.6</b>	46.4	20.0	<b>66.4</b>	38.4	20.0	<b>58.4</b>	48.0	<b>48.0</b>	52.8	40.0	<b>92.8</b>	C
64	SREENIKTHA VALSAN	SCM20CS126	40.0	20.0	<b>60.0</b>	48.0	20.0	<b>68.0</b>	48.0	20.0	<b>68.0</b>	24.0	<b>24.0</b>	21.6	40.0	<b>61.6</b>	C
65	TOM GEORGE KAPPIL	SCM20CS127	9.6	20.0	<b>29.6</b>	48.0	20.0	<b>68.0</b>	44.8	20.0	<b>64.8</b>	24.0	<b>24.0</b>	38.4	40.0	<b>78.4</b>	P
66	VAISHNAV M V	SCM20CS128	36.8	20.0	<b>56.8</b>	40.0	20.0	<b>60.0</b>	44.8	20.0	<b>64.8</b>	24.0	<b>24.0</b>	28.8	40.0	<b>68.8</b>	C+
<b>No of Students scored set attainment level</b>			14	62	<b>31</b>	42	66	<b>55</b>	40	65	<b>50</b>	12	<b>12</b>	44	65	<b>59</b>	<b>43</b>
<b>% of Students scored set attainment level</b>			21	94	<b>47</b>	64	100	<b>83</b>	61	98	<b>76</b>	18	<b>18</b>	67	98	<b>89</b>	<b>65</b>
<b>Level of Attainment</b>			0	3	<b>0</b>	1	3	<b>3</b>	1	3	<b>2</b>	0	<b>0</b>	1	3	<b>3</b>	<b>1</b>

Course Outcomes	Attainment Level
	Internal Assessment
CST401.1	0

CST401.2	3
CST401.3	2
CST401.4	0
CST401.5	3
	<b>1.60</b>

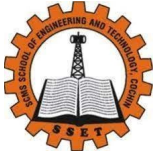
Method	Weightage
Internal Assessment	<b>33</b>
University Assessment	<b>67</b>

<b>Attainment of CO for CST401</b>	<b>1.20</b>
------------------------------------	-------------



  
 PRINCIPAL  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576





# SCMS SCHOOL OF ENGINEERING & TECHNOLOGY

VIDYA NAGAR, KARUKUTTY, ERNAKULAM – 683576, PHONE: 0484-2882900, 2450330

E-Mail: [sset@scmsgroup.org](mailto:sset@scmsgroup.org) Website: [www.scmsgroup.org/sset](http://www.scmsgroup.org/sset)

---

## Sample PO Attainment Calculation Sheet

**SCMS SCHOOL OF ENGINEERING AND TECHNOLOGY**

**DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING**

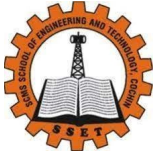
**COURSE WISE - PO AND PSO ATTAINMENT**

Name of Faculty:	SINDHYA K NAMBIAR												AY 2023-2024			
Course Code:	CST401												SEM : 8			
Course Name:	ARTIFICIAL INTELLIGENCE												CLASS : S8 CS2			<b>INDIRECT ATTAINMENT CO Attainment Level</b>
PO																
CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3	
CST401.1	2											2	2		2	2
CST401.2	2	2										2	2		2	2
CST401.3	2	2	1	2								2	2	1	2	3
CST401.4	1	2	1	2								2	1	2	3	2
CST401.5	3	1										2	3	2	3	3
<b>Average</b>	2.00	1.75	1	2								2	2	1.667	2.40	<b>2.40</b>

**Actual CO - PO Attainment for the Final CO attained Value of**

<b>PO Attainment</b>	<b>0.80</b>	<b>0.70</b>	<b>0.40</b>	<b>0.80</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.80</b>	<b>0.80</b>	<b>0.67</b>	<b>0.96</b>
----------------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------	-------------

<b>PO - Indirect Attainment</b>													<b>PSO Indirect Attainment</b>		
<b>PO &amp; PSO Indirect Attainment</b>	1.60	1.40	0.80	1.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60	1.60	1.33	1.92



**SCMS SCHOOL OF ENGINEERING & TECHNOLOGY**

VIDYA NAGAR, KARUKUTTY, ERNAKULAM – 683576, PHONE: 0484-2882900, 2450330

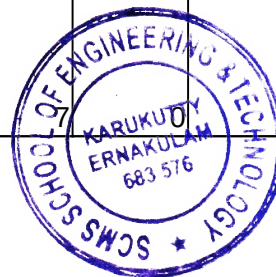
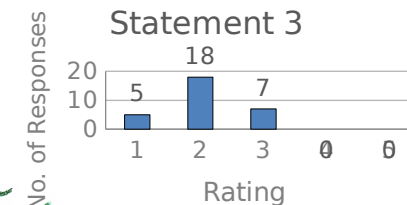
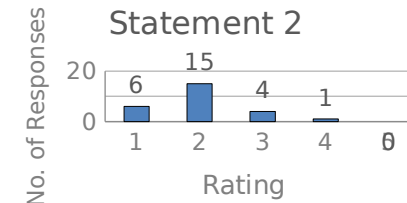
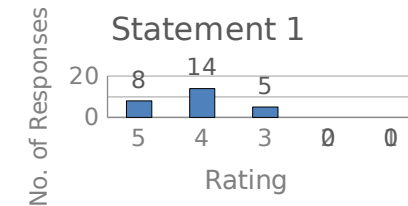
E-Mail: [sset@scmsgroup.org](mailto:sset@scmsgroup.org) Website: [www.scmsgroup.org/sset](http://www.scmsgroup.org/sset)

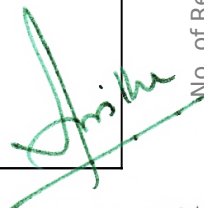
---

## Exit Survey Analysis

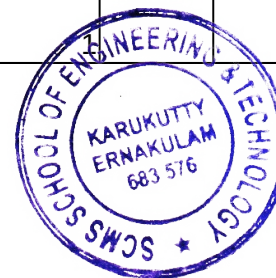
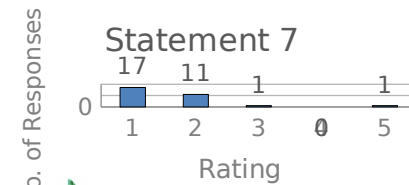
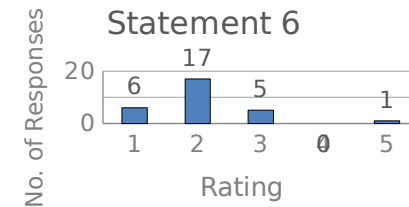
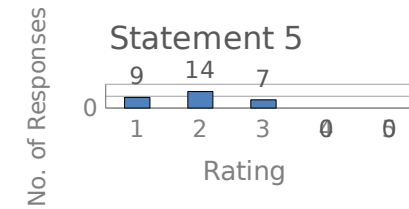
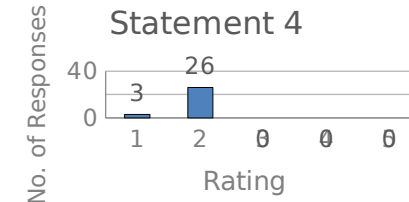
**SCMS SCHOOL OF ENGINEERING & TECHNOLOGY, KARUKUTTY**  
**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING**  
**EXIT SURVEY [2019-2023]**

Sl. No	Statement	Assessment					Percentage rating above 4	PO & PSO Attainment Level through Program Exit Survey
		Strongly Agree	Agree	Neither disagree nor agree	Disagree	Strongly Disagree		
		5	4	3	2	1		
1	The program had a good mix of required technical courses and electives.	8	14	5	0	0	73.33	
2	The computer facilities in the institute were adequate.	6	15	4	1	0	70.00	
3	The laboratory facilities in the institute were adequate.	5	18	0	0	0	76.67	



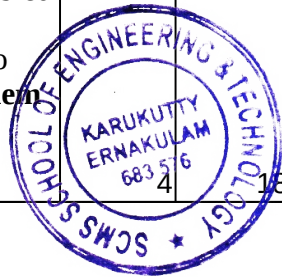
  
**PRINCIPAL**  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576

4	My class advisor and mentor were helpful and knowledgeable.	3	26	0	0	0	96.67
5	I had adequate opportunity for interaction with faculty outside the class room.	9	14	7	0	0	76.67
6	Class room facilities were conducive to learning.	6	17	5	0	1	76.67
7	The library facilities in the institute were adequate.	17	11	1	0	0	93.33



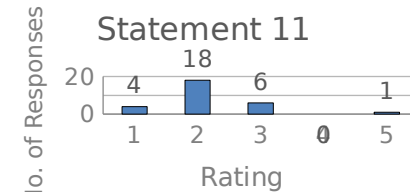
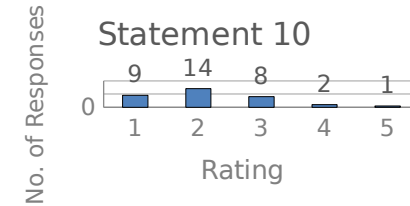
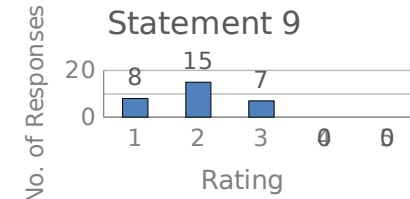
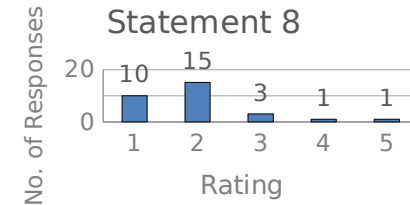
*Amitha*  
 PRINCIPAL  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576

8	The internet facilities in the campus were adequate.	10	15	3	1	1	83.33
9	The training and placement activities in the institute were adequate.	8	15	7	0	0	76.67
10	My learning experience at SSET provided me with the ability to apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems ( <b>Engineering knowledge</b> ).	9	14	8	2	1	76.67
11	My engineering studies have enabled me with the ability to design and conduct experiments as well as to analyze and interpret data ( <b>Problem analysis</b> ).	4	18	6	0	1	73.33

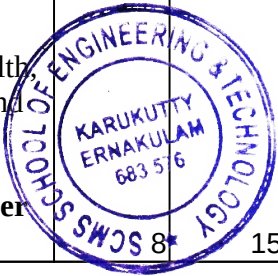


*Prithu*  
PRINCIPAL

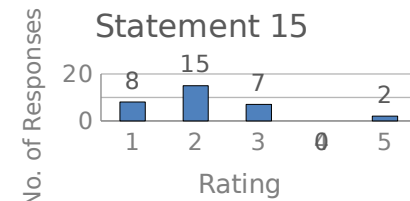
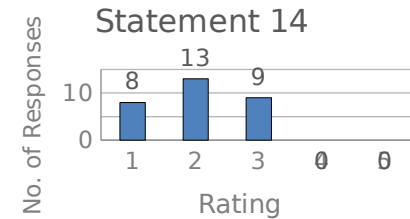
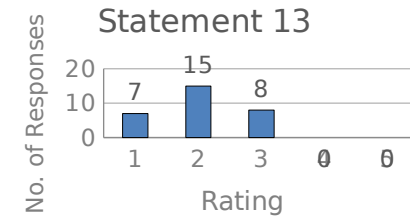
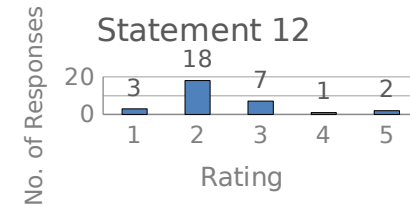
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576



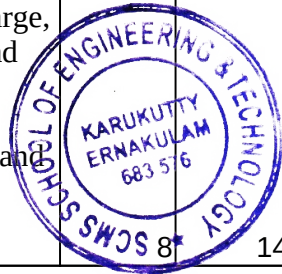
12	I am prepared to identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences <b>(Design/development of solutions).</b>	3	18	7	1	2	70.00
13	I am prepared to use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions <b>(Conduct investigations of complex problems).</b>	7	15	8	0	0	73.33
14	I have the skills necessary create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations <b>(Modern tool usage).</b>	8	13	9	0	0	70.00
15	I am capable to apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice <b>(The engineer and society).</b>	8	15	0	2	0	76.67



*Dr. Inu*  
 PRINCIPAL  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576

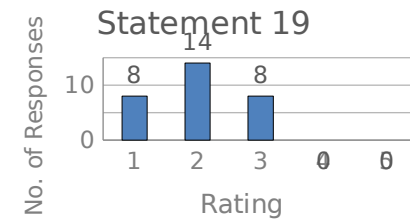
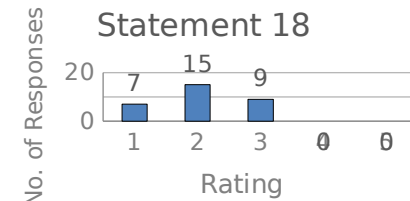
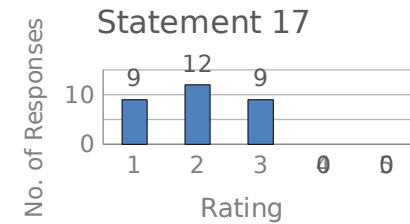
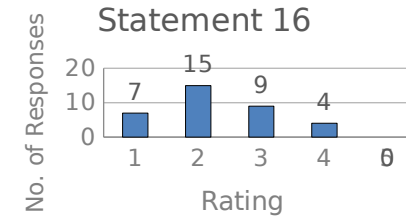


16	My studies provided me with the ability to understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development <b>(Environment and sustainability).</b>	7	15	9	4	0	73.33
17	The education I received at SSET has enabled me to apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice <b>(Ethics).</b>	9	12	9	0	0	70.00
18	The education I received at SSET has enabled me to function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings <b>(Individual and team work).</b>	7	15	9	0	0	73.33
19	The education I received at SSET has enabled me to communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions <b>(Communication).</b>	8	14	8	0	0	73.33



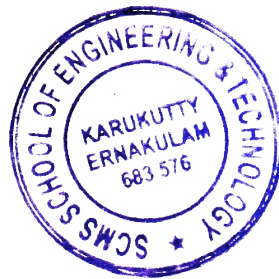
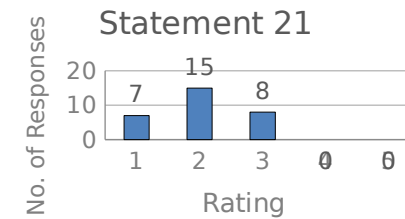
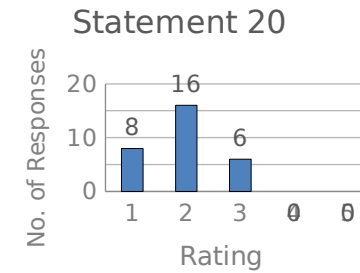
*Dr. Inthu*

PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

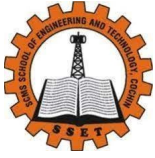




20	The education I received at SSET has enabled me to demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments <b>(Project management and finance).</b>	8	16	6	0	0	80.00
21	The education I received at SSET has enabled me to Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change <b>(Life-long learning).</b>	7	15	8	0	0	73.33



*[Handwritten Signature]*  
 PRINCIPAL  
 SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
 VIDYANAGAR, PALLISSERY, KARUKUTTY  
 ERNAKULAM, KERALA-683 576



# SCMS SCHOOL OF ENGINEERING & TECHNOLOGY

VIDYA NAGAR, KARUKUTTY, ERNAKULAM – 683576, PHONE: 0484-2882900, 2450330

E-Mail: [sset@scmsgroup.org](mailto:sset@scmsgroup.org) Website: [www.scmsgroup.org/sset](http://www.scmsgroup.org/sset)

---

## PO Attainment Graph



# SCMS SCHOOL OF ENGINEERING & TECHNOLOGY

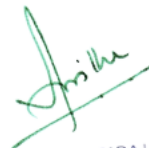
VIDYA NAGAR, KARUKUTTY, ERNAKULAM - 683576, PHONE: 0484-2882900, 2450330

E-Mail: sset@scmsgroup.org Website: www.scmsgroup.org/sset

## PO Attainment of Batch 2020-2024

Programme Name	Program me Code	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Automobile Engineering	AU	1.3	1.1	1	1	1.2	1.1	1.4	1.3	1.6	1.5	1.4	1.2
Civil Engineering	CE	1.66	1.33	1.4	1.63	1.35	1.33	1.71	1.42	1.61	1.77	1.52	1.4
Computer Science and Engineering	CSE	2.04	1.86	1.81	1.51	1.79	1.65	2.1	1.6	1.71	1.79	1.31	1.66
Electronics and Communication Engineering	ECE	2.15	2.04	1.93	1.59	1.95	1.56	2.12	1.8	2.04	1.88	1.74	1.68
Electrical and Electronics Engineering	EEE	1.85	1.56	1.64	1.65	1.69	1.51	1.58	1.55	2.02	2.02	1.52	1.48
Mechanical Engineering	ME	1.77	1.52	1.47	1.41	1.59	1.48	1.7	1.54	1.92	1.86	1.37	1.46



  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576

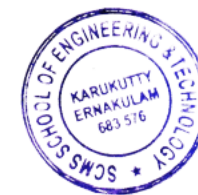
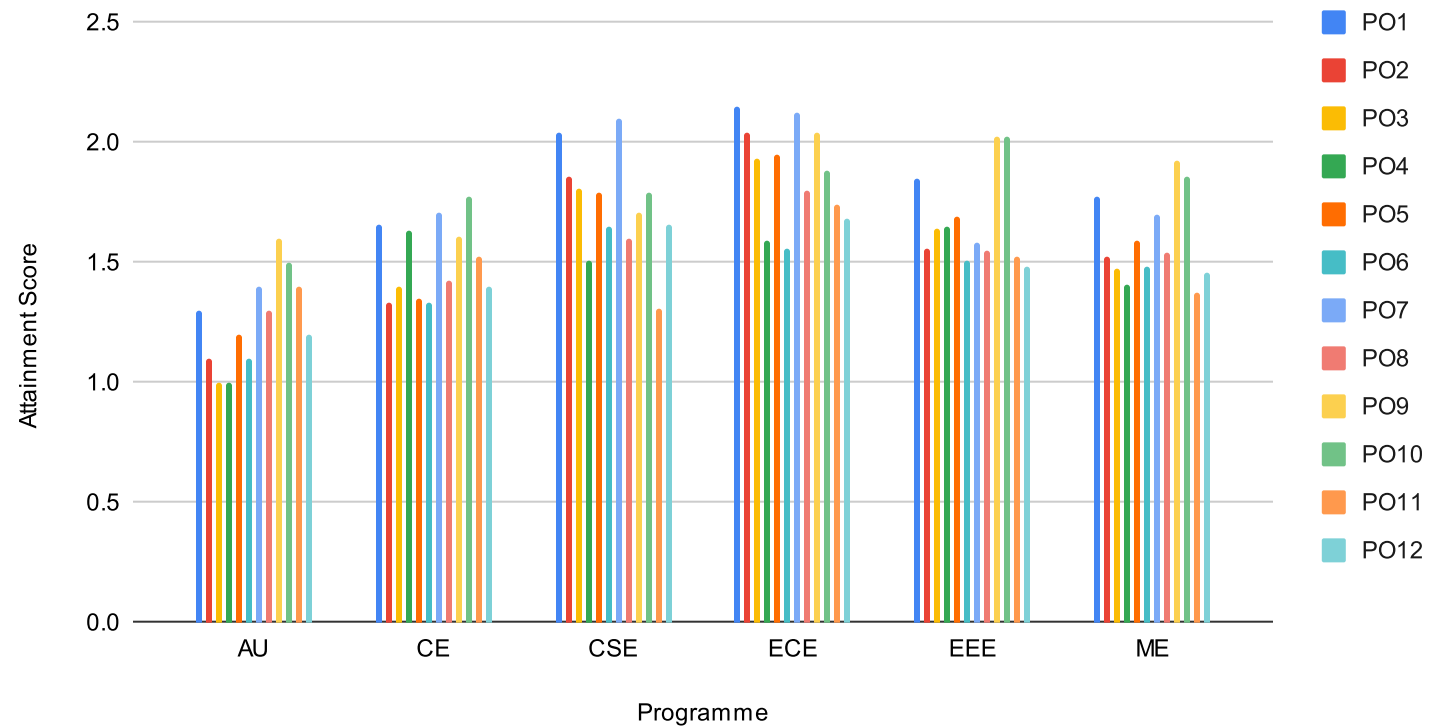


# SCMS SCHOOL OF ENGINEERING & TECHNOLOGY

VIDYA NAGAR, KARUKUTTY, ERNAKULAM - 683576, PHONE: 0484-2882900, 2450330

E-Mail: sset@scmsgroup.org Website: www.scmsgroup.org/sset

## PO Attainment- Batch 2020-2024



  
PRINCIPAL  
SCMS SCHOOL OF ENGINEERING & TECHNOLOGY  
VIDYANAGAR, PALLISSERY, KARUKUTTY  
ERNAKULAM, KERALA-683 576