



# Indra Ganesan

## COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai  
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

# NAAC DOCUMENTS

## QUALITY INDICATOR FRAME WORK

### CRITERION – 1

## CURRICULAR ASPECTS

SUBMITTED BY

**IQAC**

INTERNAL QUALITY ASSURANCE CELL

**INDRA GANESAN COLLEGE OF ENGINEERING**





Criteria 1	Curricular Aspects	100
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## 1.1 Curricular Planning and Implementation (20)

### 1.1.1 The Institution ensures effective curriculum planning and delivery through a well-planned and documented process including Academic calendar and conduct of continuous internal Assessment

#### Table of Content

S. No	Description
1.	Preface of the Course File
2.	Workload Allocation
3.	Syllabus
4.	Course Committee Meeting
5.	Faculty Time Table
6.	Course Plan
7.	Content Beyond Syllabus
8.	Assignment Question paper
9.	Tutorial Question Paper
10.	Exam time table
11.	Internal Assessment Question Paper
12.	Retest Schedule
13.	Retest Question Paper
14.	Internal Assessment Answer book
15.	IQAC Academic Audit Form
16.	Root Cause Analysis

# INDRA GANESAN COLLEGE OF ENGINEERING

IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India  
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

## DEPARTMENT OF INFORMATION TECHNOLOGY

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### PREFACE OF THE COURSE FILE

Batch : 2020-2024

Academic Year : 2022-2023 / EVEN


Program : INFORMATION TECHNOLOGY

Year & Semester : 3<sup>rd</sup> Year / VI<sup>th</sup> Semester

Course Code : CS8592

Name of the Course : Object Oriented Analysis and Design

Faculty in-charge : Mrs. S. SURYA, AP/IT

  
Signature of the Faculty in-charge

  
HoD / IT

  
Dr. G. Balakrishnan, M.E., Ph.D.,

Principal

Indra Ganesan College of Engineering

IG Valley, Madurai Main Road

Manikandam, Trichy-620 012.



**Indra Ganesan College of Engineering**  
 Madurai Main Road (NH-45B), Manikandam, Tiruchirappalli-620012  
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**Department of INFORMATION TECHNOLOGY**

**Work Load Allocation - Even Semester  
2022-2023**

S.NO.	Staff Name	Course Code	Course Name	Semester	Lecture / week	Total
1	Dr. B. Kanisha	CS3491	Artificial Intelligence and Machine Learning	IV	4	14
		IT8601	Big Data Analytics	VI	4	
		IT8611	Project Work	VIII	6	
2	Mrs. S. Surya	CS3451	Introduction to Operating Systems	IV	4	16
		CS8592	Object Oriented Analysis and Design	VI	4	
		CS8091	Computational Intelligence	VI	4	
		CS8582	Object Oriented Analysis and Design Laboratory	VI	4	
		IT3401	Web Essentials	IV	4	
3	Dr. K. Uthra Devi	IT8602	Mobile Communication	VI	4	20
		CS8092	Computer Graphics and Multimedia	VI	4	
		CS8662	Mobile Application Development Laboratory	VI	4	
		IT8611	Mini Project	VI	4	
		CS3492	Database Management Systems	IV	4	
4	Mr. A. Vivek Ignatius	IT8076	Software Testing	VI	4	20
		CS3251	Programming in C	II	4	
		CS3481	Database Management Systems Laboratory	IV	4	
		IT8611	Mini Project	VI	4	
		CS3452	Theory of Computation	IV	4	
5	Dr. V. Nancy	CS3461	Operating Systems Laboratory	IV	4	12
		CS3271	C Programming Laboratory	II	4	

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 PRINCIPAL

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 HOD/IT

*[Signature]*  
**Dr. G. Balakrishnan, M.E., Ph.D.,**  
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 Manikandam, Trichy-620 012.





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Madurai Main Road (NH-45B), Madurai, Madurai, Tiruchirappalli-620012  
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NAAC Accredited: 2 (C) #12 (8) Status: Institution by CG-C



# DEPARTMENT OF INFORMATION TECHNOLOGY

Academic Year 2022-2023 (Even Semester)

Class: III Year / VI Sem

CLASS CO-ORDINATOR : Mrs. S. Surya									
Day	TEST	1	2	3	4	5	6	7	8
MON	9.15-10.00 CI	10.00-10.45 OOAD	11.00-11.45 CI	11.45-12.30 MC	12.30-1.15 BD	2.00-2.45 CGM	2.45-3.25 BD	3.35-4.15 SPORTS	4.15-5.00 MAD LAB
TUE	OOAD	BD	CGM	OOAD	MC	LUNCH			
WED	MC	MC	BD	BD	CI	BREAK			
THUR	BDA	OOAD	CI	CGM	OOAD	OOAD LAB			
FRI	CGM	MC	CGM	CI	COUNSELLING	MINI PROJECT			
						Professional Communication			
						LIBRARY			
						SEMINAR/NPTEL			
						T & P			

NOTE: Attendance will be marked from 9.15 am to 9.25 am

SUBJECT CODE	COURSE NAME	ERP ID	CREDITS/ HOURS	STAFF IN-CHARGE
IT 8601	Computational Intelligence		3/4	Dr. HOD/IT
CS8592	Object Oriented Analysis And Design		3/4	Mrs. S. Surya AP/IT
IT8602	Mobile Communication		3/4	Dr. K. Uthra Devi, ASP/IT
CS8091	Big Data Analytics		3/5	Dr. B. Kanisha , Prof./IT
CS8092	Computer Graphics And Multimedia		3/4	Dr. K. Uthra Devi, ASP/IT
CS8582	Object Oriented Analysis And Design Laboratory		4/4	Mrs. S. Surya, AP/IT
CS8662	Mobile Application Development Laboratory		4/4	Dr. K. Uthra Devi, ASP/IT
IT8611	Mini Project		2/2	Mr. A. Vivek Ignatius, AP/IT
HS8581	Professional Communication		2/2	A.Antoniette Sheela, AP/H & S

V. Nay  
Time Table Incharge

leaf  
HOD

Principal

**Dr. G. Balakrishnan, M.E., Ph.D.**  
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## DEPARTMENT OF INFORMATION TECHNOLOGY

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CS8592

### OBJECT ORIENTED ANALYSIS AND DESIGN

3 0 0 3

#### OBJECTIVES:

- To understand the fundamentals of object modeling
- To understand and differentiate Unified Process from other approaches.
- To design with static UML diagrams.
- To design with the UML dynamic and implementation diagrams.
- To improve the software design with design patterns.
- To test the software against its requirements specification

#### UNIT I UNIFIED PROCESS AND USE CASE DIAGRAMS

9

Introduction to OOAD with OO Basics - Unified Process - UML diagrams - Use Case -Case study -the Next Gen POS system, Inception -Use case Modelling - Relating Use cases - include, extend and generalization - When to use Use-cases

#### UNIT II STATIC UML DIAGRAM

9

Class Diagram— Elaboration - Domain Model - Finding conceptual classes and description classes - Associations - Attributes - Domain model refinement - Finding conceptual class Hierarchies - Aggregation and Composition - Relationship between sequence diagrams and use cases - When to use Class Diagrams

#### UNIT III DYNAMIC AND IMPLEMENTATION UML DIAGRAMS

9

**Dynamic Diagrams** - UML interaction diagrams - System sequence diagram - Collaboration diagram - When to use Communication Diagrams - State machine diagram and Modelling -When to use State Diagrams - Activity diagram - When to use activity diagrams

**Implementation Diagrams** - UML package diagram - When to use package diagrams - Component and Deployment Diagrams - When to use Component and Deployment diagrams

#### UNIT IV DESIGN PATTERNS

9

**GRASP:** Designing objects with responsibilities - Creator - Information expert - Low Coupling - High Cohesion - Controller

**Design Patterns** – **creational** - factory method – **structural** - Bridge - Adapter – **behavioural** - Strategy - observer -Applying GoF design patterns - Mapping design to code

#### UNIT V TESTING

9

Object Oriented Methodologies - Software Quality Assurance - Impact of object orientation on Testing - Develop Test Cases and Test Plans

TOTAL: 45 PERIODS

  
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**OUTCOMES:**

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

- Express software design with UML diagrams
- Design software applications using OO concepts.
- Identify various scenarios based on software requirements
- Transform UML based software design into pattern based design using design patterns
- the various testing methodologies for OO software

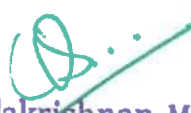
**TEXT BOOKS:**

1. Craig Larman, "Applying UML and Patterns: An Introduction to Object-Oriented Analysis and Design and Iterative Development", Third Edition, Pearson Education, 2005.
2. Ali Bahrami - Object Oriented Systems Development - McGraw Hill International Edition - 1999

**REFERENCES:**

1. Erich Gamma, and Richard Helm, Ralph Johnson, John Vlissides, "Design patterns: Elements of Reusable Object-Oriented Software", Addison-Wesley, 1995.
2. Martin Fowler, "UML Distilled: A Brief Guide to the Standard Object Modeling Language", Third edition, Addison Wesley, 2003.

  
Hod/IT

  
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## DEPARTMENT OF INFORMATION TECHNOLOGY

Ref: SBECW/ IT / Course committee meeting / EM-I/ 2022-23 (Even)

DATE: 12.05.2023

### COURSE COMMITTEE MEETING-CS8592-OBJECT ORIENTED ANALYSIS AND DESIGN

ACADEMIC YEAR: 2022-2023 (EVEN) SEM: 06 REGULATION: 2017  
PROGRAM: IT DATE OF MEETING: 12.05.23 TIME: 10.00AM Venue: IT Dept. HoD Cabin

Members Present

Table.1 Course committee members

S.No.	Name of the faculty & Designation, Program	Sem/Sec/Program	Signature
1.	Dr.B. Kanisha, HoD /IT - Course coordinator	VI SEM/IT	
2.	Mrs. S. Surya, AP/IT	VI SEM//IT	

HOD welcomed all the members present

1. Content of syllabus, unit wise discussed. Nature of qualitative, quantitative, problematic, theoretical concepts etc. have been discussed
2. With reference to the R-2017 regulation, Number of periods per unit = 09, total number of periods = 45 periods. 10 periods allotted for tutorials.
3. Vision and mission of the college, department discussed. POs, PEOs, PSOs discussed.
4. Course outcomes defined for each units, considering learning outcomes.

Table.2 Course Outcomes

CO	Course Outcomes	POs	PSOs
C302.1	To understand the basics of software designs with UML diagrams.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C302.2	To develop software models techniques and design software applications using OO concepts.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C302.3	To identify various scenarios based on software requirements.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C302.4	To transform UML based software design into pattern based design using design patterns.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C302.5	To understand the various testing methodologies for OO software.	1,2,3,4,5,6,7,8,9,10,11,12	1,2

5. Mapping of COs with POs and PSOs is done with suitable correlation levels(1 for low, 2 for medium, 3 for high, "-" for no correlation, before content beyond syllabus)

Table.3 Mapping of COs, C, PSOs with POs- before CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C302.1	3	2	3	-	2	2	2	-	-	3	-	2	2	2
C302.2	3	-	3	2	-	2	2	-	2	-	-	2	2	2
C302.3	3	-	3	-	-	2	2	-	-	-	2	2	2	2
C302.4	3	2	3	2	2	2	-	-	2	-	-	2	2	2
C302.5	-	-	-	-	-	2	2	-	-	3	2	2	2	2

6. Identification of content beyond syllabus- curricular gaps are identified considering industry needs, employers feedback, alumni feedback, government policy on industrialization, new investments by private/ public sectors, societal needs and level of correlation of COs with POs and PSOs. Accordingly the details of CBS added and its correlation is given below.

  
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Table.4 Identification of content beyond syllabus

Content beyond syllabus added	POs strengthened/Vacant filled	CO/Unit
Testing tool	PO9 Vacant Filled	C302.3 & C302.5/III & V

## 7. Mapping of COs with POs, PSOs- after CBS.

Table.5 Mapping of COs, C, PSOs with POs- after CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C302.1	3	2	3	-	2	2	2	-	-	3	-	2	2	2
C302.2	3	-	3	2	-	2	2	-	2	-	-	2	2	2
C302.3	3	-	3	-	-	2	2	-	2	-	2	2	2	2
C302.4	3	2	3	2	2	2	-	-	2	-	-	2	2	2
C302.5	-	-	-	-	-	2	2	-	2	3	2	2	2	2

8. Content beyond syllabus is thus identified based on the above. Plan for handling of CBS by internal/external resource person/ industrial visits are decided. This will be included in the class log book.
9. Lecture schedule should be prepared unit wise, as in the syllabus. Number of periods per unit and total number of periods planned should not be less than, periods allotted in the syllabus of Anna University.
10. Plan for additional Periods for IA tests, CBS, NPTEL delivery, Seminar, Quiz etc are to be incorporated in the lecture schedule. These periods are added exclusive of number of periods prescribed in the syllabus.
11. Plan for at least three assignments (with level of correlation), seminar topic, quiz questions discussed.
12. Separate tutorial sheets should be prepared and supplied to all students. Minimum two periods per unit to be planned, totally 10 tutorial periods. Minimum 2 tutorial questions should be set per unit, totally 10 tutorial questions.
13. Bright students and slow learners are to be identified, immediately after IA test - I. such students may be counselled suitably and the evidence for counselling to be recorded in the attendance cum assessment record. (Sign of students with date and time of counselling, to be strictly recorded and to be attached in the course file). Such counselling may be conducted after college hours.
14. For those students secured less than 60% in the IA Test, Makeup test should be conducted. Correspondingly root cause analysis for reasons of failure, corrective and preventive action, and follow up action taken should be filed properly.
15. Contents of course file to be reviewed periodically.
16. Lecture schedule, assignment questions, tutorial questions, course materials, AU questions (at least 5) should be supplied within one week after the commencement of classes.
17. Course material should be uploaded in the college website for student's reference.
18. Discrepancy in question paper, if any to be informed to the controller of examinations through web portal entry, after getting approval from the HoD & the Principal. Critically asked questions, if any to be discussed with the students of the next batch.
19. Immediately after the publication of the results, analysis are to be carried out and follow up action to be taken for the failures.
20. IA test question papers should be set as per the norms of the college, incorporating marks for learning outcomes and course outcomes. Common question papers should be set.
21. Certificate courses/Workshop/guest lectures may be planned inviting experts from industry/higher learning institutions.
22. After IA test, an objective type tests may be conducted (3 times in a semester-30 minutes duration-maximum 10 questions). Questions asked in GATE, TANCET, IES or any other Competitive examination can be taken as a reference. This is to facilitate the bright students to prepare for higher level of thinking and to enhance placement and higher studies opportunities.
23. IA test papers, assignment papers or any other papers submitted by the students, should be returned to the students within 5 days after correction. Sample paper should be suitably filed.
24. Long absentees of students if any to be informed to the parents through class coordinator, if such students attendance less than 75%.

  
Course coordinator

  
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HoD/IT

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## DEPARTMENT OF INFORMATION TECHNOLOGY

### Faculty Time Table

<u>Mrs. S. Surya AP/ IT</u>								
Day Order	1	2	3	4	5	6	7	8
I		OOAD						
II	OOAD			OOAD				
III								
IV		OOAD			OOAD			
V								
S.Code	Title			Year / Branch		Hours		
CS8592	Object Oriented Analysis and Design			III / IT		5		
TOTAL - 5 hours								



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## DEPARTMENT OF INFORMATION TECHNOLOGY

### Lecture Schedule

Degree/Program: **B.TECH / IT**  
Duration: **2017**

Course code & Name: **CS8592 & OOAD**  
Semester: **VI** Faculty : **Mrs. S. Surya**

### AIM:

To expose the students to principle of operation and performance of electrical machines

### OBJECTIVES:

To impart knowledge on

- (i) To introduce techniques of magnetic-circuit analysis and introduce magnetic materials.
- (ii) To familiarize the constructional details, the principle of operation, prediction of performance, the methods of testing the transformers and three phase transformer connections.
- (iii) To study the working principles of electrical machines using the concepts of electromechanical energy conversion principles and derive expressions for generated voltage and torque developed in all Electrical Machines.
- (iv) To study the working principles of DC machines as Generator types, determination of their no- load/load characteristics, starting and methods of speed control of motors.
- (v) To estimate the various losses taking place in D.C. Motor and to study the different testing methods to arrive at their performance.

PREREQUISITES: Circuit theory, Electromagnetic theory.

### COURSE OUTCOMES:

After the course, the student should be able to:

CO	Course Outcomes	POs	PSOs
C302.1	To understand the basics of software designs with UML diagrams.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C302.2	To develop software models techniques and design software applications using OO concepts.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C302.3	To identify various scenarios based on software requirements.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C302.4	To transform UML based software design into pattern based design using design patterns.	1,2,3,4,5,6,7,8,9,10,11,12	1,2
C302.5	To understand the various testing methodologies for OO software.	1,2,3,4,5,6,7,8,9,10,11,12	1,2




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S.No	Date	Topics to be Covered	Book
<b>UNIT -I UNIFIED PROCESS AND USE CASE DIAGRAMS -</b>			<b>Target periods :09</b>
1	6.2.23	Introduction to OOAD with OO Basics	T1/BB
2	7.2.23	Unified Process	R2/BB
3	7.2.23	UML diagrams	T1/BB
4	8.2.23	Use Case	T3/BB
5	9.2.23	Case study	R3/BB
6	10.2.23	The Next Gen POS system , Inception	T2/BB
7	15.2.23	Use case Modelling	T1/BB
8	16.2.23	Relating Use cases	T1/BB
9	17.2.23	Include, extend and generalization	T1/BB
10	21.2.23	Tutorial	
11	21.2.23	Tutorial	
<b>UNIT II - STATIC UML DIAGRAMS</b>			<b>Target periods :09</b>
12	28.2.23	Class Diagram	T1/BB
13	01.3.23	Elaboration	R2, T1/BB
14	3.3.23	Domain Model	R2, T1/BB
15	16.3.23	Finding conceptual classes and description classes	T1/BB
16	20.3.23	Associations	R3 /BB
17	21.3.23	Attributes	T1/BB
18	24.3.23	Domain model refinement	T1/BB
19	27.3.23	Finding conceptual class Hierarchies	R1/BB
20	27.3.23	Aggregation and Composition	T1/BB
21	28.3.23	Tutorial	
22	28.3.23	Tutorial	
<b>UNIT III -DYNAMIC AND IMPLEMENTATION UML DIAGRAMS</b>			<b>Target Periods:09</b>
23	30.3.23	UML interaction diagrams	T1/BB
24	31.3.23	System sequence diagram	T1/BB T1/BB
25	3.4.23	When to use Communication Diagrams	R1/BB
26	5.4.23	State machine diagram and Modelling	T2/BB
27	6.4.23	When to use State Diagrams	R1/BB
28	10.4.23	Activity diagram	T3/BB
39	12.4.23	When to use activity diagrams	T3/BB
30	24.4.23	Collaboration diagram	
31	24.4.23	Tutorial	
32	26.4.23	Tutorial	
<b>UNIT IV - DESIGN PATTERNS</b>			<b>Target Periods: 09</b>
33	26.4.23	<b>GRASP:</b> Designing objects with responsibilities	T1/BB
34	28.4.23	Creator	T1/BB
35	28.4.23	Information expert	R2/BB
36	2.5.23	Low Coupling – HighCohesion	T1/BB
37	3.5.23	Controller	T3/BB

  
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38	4.5.23	<b>Design Patterns – creational</b>	R3/BB
39	8.5.23	Factory method	R2/BB
40	10.5.23	<b>Structural – Bridge – Adapter</b> <b>Behavioural –Strategy</b>	T1/BB T1/BB
41	10.5.23	Tutorial	
42	12.5.23	Tutorial	
<b>UNIT V - TESTING</b>			<b>Target Periods:09</b>
43	12.5.23	Object Oriented Methodologies	T1/BB
44	15.5.23	Software Quality Assurance	T2/BB
45	15.5.23	Impact of object orientation on Testing	R1/BB
46	16.5.23	Develop Test Cases	T3/BB
47	16.5.23	Test Plans	R3/BB
48	17.5.23	Object Oriented Methodologies	T1/BB
49	17.5.23	Software Quality Assurance	R2/BB
50	18.5.23	Impact of object orientation on Testing	R1/BB
51	18.5.23	Develop Test Cases	
52		Tutorial	
53		Tutorial	
<b>Content Beyond the Syllabus</b>			
54		Testing tools	Material

#### Book Reference - Text Books

Sl.	Title of the Book	Author	Publisher	Year
1	An Introduction to Object-Oriented Analysis and Design	Craig Larman	Pearson Education Third Edition,	2005.
2.	Object Oriented Systems Development	. Ali Bahrami	McGraw Hill International Edition	1999

  
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### Book Reference – References

Sl	Title of the Book	Author	Publisher	Year
1.	Design patterns: Elements of Reusable Object	Erich Gamma, Ralph Johnson, John Vlisside and Richard Helm	Addison-Wesley	1995

### Website Reference:

[https://towardsdatascience.com/top-13-resources-to-learn python/](https://towardsdatascience.com/top-13-resources-to-learn-python/)

[https://www.bestcolleges.com/bootcamps/guides/learn-object oriented analysis and design-free/](https://www.bestcolleges.com/bootcamps/guides/learn-object-oriented-analysis-and-design-free/)



Signature of the Faculty in-charge



HoD / IT



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## DEPARTMENT OF INFORMATION TECHNOLOGY

### Identification of Curricular Gap & Content Beyond Syllabus(CBS)

Name of the Faculty : Mrs. S. Surya

Course Code & Name: CS8592 & OOAD

Technology Degree & Program: B.TECH /IT

Semester: VI Year: 2022 -2023 /EVEN

#### I. Mapping of Course Outcomes with POs & PSOs.( before CBS)

Table.1 Mapping of COs, C, PSOs with POs - before CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C302.1	3	2	3	-	2	2	2	-	-	3	-	2	2	2
C302.2	3	-	3	2	-	2	2	-	2	-	-	2	2	2
C302.3	3	-	3	-	-	2	2	-	-	-	2	2	2	2
C302.4	3	2	3	2	2	2	-	-	2	-	-	2	2	2
C302.5	-	-	-	-	-	2	2	-	-	3	2	2	2	2
C302	3	2	3	2	2	2	2	-	2	3	2	2	2	2

#### II. Identification of content beyond syllabus.

Table.2 Identification of content beyond syllabus

Details of Content Beyond Syllabus(CBS) added	POs strengthened/ vacant filled	CO/Unit
Testing Tools	PO9(Vacant filled	C302.3 & C302.5 / III & V

#### III. Mapping of Course Outcomes with POs & PSOs. (After CBS)

Table.3 Mapping of COs, C, PSOs with POs- after CBS.

Course	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
C302.1	3	2	3	-	2	2	2	-	-	3	-	2	2	2
C302.2	3	-	3	2	-	2	2	-	2	-	-	2	2	2
C302.3	3	-	3	-	-	2	2	-	*2	-	2	2	2	2
C302.4	3	2	3	2	2	2	-	-	2	-	-	2	2	2
C302.5	-	-	-	-	-	2	2	-	*2	3	2	2	2	2
C302	3	2	3	2	2	2	2	-	4	3	2	2	2	2

  
Signature of the Faculty



  
HoD/IT

Dr. G. Balakrishnan, M.E., Ph.D.,

Principal

Indra Ganesan College of Engineering

IG Valley, Madurai Main Road

Manikandam, Trichy-620 012.

# INDRA GANESAN COLLEGE OF ENGINEERING

IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 620 012, India  
(Approved by AICTE, New Delhi, Affiliated to Anna University, Chennai-25)

## DEPARTMENT OF INFORMATION TECHNOLOGY

### Proof and identification of Content Beyond Syllabus(CBS)

Name of the Faculty : Mrs. S. Surya  
Degree & Program: B.TECH & IT

Course Code & Name: CS8592 & OOAD  
Semester: VI Academic Year: 2022 -2023 /EVEN

#### TOPIC: TESTING TOOLS

##### WinRunner:

- It's a Functionality Testing Tool.
- It's a Mercury Interactive's Testing tool.
- Supports VB, VC++, Java, Power Builder, Delphi, D2K, HTML, Siebel.
- It Records GUI operations in Record mode.
- While Recording, it Automatically generates a Test Script Language(TSL).
- It can do functional Testing of a variety of application software written in programming languages such as PowerBuilder, VB, C/C++, JAVA and also on ERP/CRM software packages.
- Run on Windows family Operating Systems.
- XRunner works on Unix and Linux Platforms.
- It Perform Testing in all Windows OS, Browser Environments such as Internet Explorer.
- It can add checkpoints to compare actual and expected results.
- It provides a facility for synchronization of Test Cases.
- An automated program to apply a test on Application build is called a Test Script.
- It supports Auto-learning to Recognize Objects and Windows during recording.
- It support two types of modes of recording.
- Context Sensitive Mode
- Analog Mode
- In the 1<sup>st</sup> mode, it records *Mouse & Keyboard* operations w.r.t. to objects and windows.
- In the 2<sup>nd</sup> mode, it records *Mouse pointer* movements on the desktop.
- To change into analog mode follow the steps below.
- Click "*Start Recording*" twice.
- Go to *Create Menu* and then click *Record Analog*
- Press *F2* to change from one mode to other.
- Analog mode is used to record digital signatures, Graph drawing and Image movements.

  
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### Testing Process

- Learning (Objects/Windows Recognition)
- Recording (Manual Test into an Automation)
- Edit Script (Checkpoints & Ctrl Stmts)
- Run Script (Execution of Automated Script)
- Analyze Test Results (Defect Tracking for Test Engineers)

### Testing an Application

- After installing the software, invoke the WinRunner application
- Start → All Programs → WinRunner → WinRunner
- Give Checkmarks for all Add-Ins in the boxes and click Ok.
- Select "New test" to Create a New Test Script (or)
- "Open test" to Open an Existing Test Script (or)
- "Quick Preview" to View the Quick Preview of WinRunner

  
Signature of the Faculty

  
**Dr. G. Balakrishnan, M.E., Ph.D.,**  
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HoD/IT

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## DEPARTMENT OF INFORMATION TECHNOLOGY

### Assignment Question Paper

Assignment – 01			Date of Issue:	04.03.2023	Marks	10
Course code	CS8592	Course Title	Object Oriented analysis and Design			
Year	III	Semester	VI	Date of Submission:	18.03.2023	

Q.No	Questions	CO
1	Explain in detail about relating Use cases, when to use use cases	C302.3
2	Explain in detail about Actor, Scenarios, use cases and 4+1 view	C302.3

### Mark Allocation

Rubrics	Marks Allocated	Marks obtained
Content Quality	6	6
Presentation Quality	2	1
Timely submission	2	2
Total marks	10	9

Name and Signature of the Faculty Incharge

HoD/IT

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## DEPARTMENT OF INFORMATION TECHNOLOGY

### Tutorial Question Paper

Tutorial – 01		Date of Issue:	05.03.2023	Marks	10
Course code	CS8592	Course Title	OBJECT ORIENTED ANALYSIS AND DESIGN		
Year	III	Semester	VI	Date of Submission:	15.03.2023

Q.No	Questions	CO
1	Explain the benefits and concepts of use case and use case model and analyze the relating use cases in ATM system	C302.1
2	Describe the use case model for online exam	C302.1

  
Name and Signature of the Faculty Incharge

  
HoD/IT

  
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# Indra Ganesan

## COLLEGE OF ENGINEERING

Madurai Main Road (NH-45B), Manikandam, Trichirappalli - 620 012  
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NAAC Accredited, 2(A) Status Institution by UGC



Internal Assessment Test - I Even Sem Time Table (Higher Semester) - 2022-23

S.No	Branch	YEAR	06.03.23	07.03.23	08.03.23	09.03.23	10.03.23	13.03.23
1	CIVIL	II						
		III	CE8601 & DSSE	CE8602 & SA-II	CE8603 & IE	CE8604 & HE	EN8592 & WFE	
		IV						
2	CSE	II	CS3452 & TOC	CS3491 & AI	CS3492 & DBMS	CS3401 & ALG	GE3451 & EVS	CS3451 & OS
		III	CS8651 & IP	CS8691 & AI	CS8601 & MC	CS8602 & CD	CS8603 & DS	
		IV	GE8076 & PE	CS8080 & IRT				
3	EEE	II	EE3404 & MPMC	EE3405 & EM II	EE3401 & TD	EE3403 & MI	GE3451 & EVS	EE3402 & LIC
		III	EE8601 & SSD	EE8602 & PSG	EE8691 & ES	EE8005 & SEM	EE8002 & DEA	
		IV	EE8015 & EEG	EE8018 & MCB				
4	ECE	II	EC3452 & EPMF	EC3401 & NS	EC3491 & CS	EC3451 & LIC	GE3451 & EVS	EC3492 & DSP
		III	MG8591 & POM	EC8651 & TILRF	EC8691 & MPMC	EC8652 & WC	EC8095 & VLSI	
		IV	GE8076 & PE	EC8094 & SATCOM				
5	MECH	II	ME3491 & TOM	ME3451 & TE	ME3493 & MT-II	ME3492 & H&P	GE3451 & EVS	CE3491 & SM
		III	ME8651 & DTS	ME8691 & CAD/CAM	ME8693 & HMT	ME8692 & FEA	ME8694 & HP	
		IV	MG8591 & POM	MF8094 & CIM				
6	AGRI	II	AI3401 & TES	AI3402 & SWC	AI3403 & SOM	CE3691 & HWE	GE3451 & EVS	ME3391 & TD
		III						
		IV						
7	AI&DS	II	MA3391 & PS	AL3452 & OS	AL3451 & ML	AD3491 & FDS	GE3451 & EVS	CS3591 & CN
		III						
		IV						
8	IT	II	CS3452 & TOC	CS3491 & AI	CS3492 & DBMS	IT3491 & WE	GE3451 & EVS	CS3451 & OS
		III	IT8601 & CI	CS8592 & OOAD	IT8602 & MC	CS8091 & BDA	CS8092 & CGM	
		IV	GE8076 & PE	CS8080 & IRT				

*K. R.*  
Exam cell Coordinator

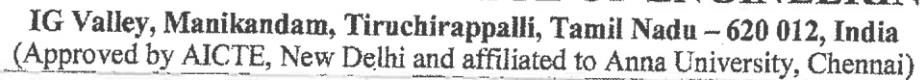
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Principal

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Manikandam, Trichy-620 012.

*Principals*  
Principal





Internal Assessment Exam - I		Date/Session	Marks		50
Course code	CS8592	Course Title	OBJECT ORIENTED ANALYSIS AND DESIGN		
Regulation	2017	Duration	90 minutes	Academic Year	2022-2023
Year	III	Semester	VI	Department	IT
<b>COURSE OUTCOMES</b>					
CO1:	Express software design with UML diagrams				
CO2:	Design software applications using OO concepts.				
CO3:	Identify various scenarios based on software requirements				
CO4:	Transform UML based software design into pattern based design using design patterns				
CO5:	Declare the various testing methodologies for OO software				

Q.No.	Question	CO	BTS
<b>PART A</b> (Answer all the Questions 10 x 2 = 20 Marks)			
1	Define OOAD	CO1	K1
2	What is Unified process	CO1	K2
3	What are the models that are created in OOAD.	CO1	K2
4	State the 3 ways of using UML suggested by Martin Fowler	CO1	K1
5	Define Unified Process.	CO1	K1
6	State and explain the three perspectives of using UML.	CO1	K1
7	Analysis in OOAD.	CO1	K3
8	What is meant by use cases, scenario and actor?	CO2	K2
9	Write the block box testing?	CO2	K5
10	What do you mean by Include? Give an example.	CO2	K2
<b>PART B</b> (Answer all the Questions 2 x 10 = 20 Marks)			
11a	Real time example for object oriented system development?	CO1	K6
OR			
11b	Real time example for dynamic and multiple inheritance?	CO1	K6
12a	Explain in detail about Actor, Scenarios, use cases and 4+1 view	CO2	K2
OR			
12b	Explain about Unified Process.	CO2	K2
<b>PART C</b> (Answer all the Questions 1 x 10 = 10 Marks)			
13a	Explain the benefits and concepts of use case and use case model and analyze the relating use cases in ATM system	CO1	K4
OR			
13b	Describe the use case model for online exam	CO1	K2

**Course Faculty**  
(Name /Sign / Date)

(Name / Sign / Date)

Manikandam, Trichy-620 012.



# Indra Ganesan

## COLLEGE OF ENGINEERING

Madurai Main Road (NH-46B), Madurai, Tiruchirappalli - 620 012  
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NAAC Accredited, 3(1F) Status Institution by UGC



### Internal Assessment Test - I Retest Even Sem Time Table (Higher Semester) - 2022-23

S.No	Branch	YEAR	12.03.23	13.03.23	14.03.23	15.03.23	16.03.23	17.03.23
1	CIVIL	II						
		III	CE8601 & DSSE	CE8602 & SA-II	CE8603 & IE	CE8604 & HE	EN8592 & WVE	
		IV						
2	CSE	II	CS3452 & TOC	CS3491 & AI	CS3492 & DBMS	CS3401 & ALG	GE3451 & EVS	CS3451 & OS
		III	CS8651 & IP	CS8691 & AI	CS8601 & MC	CS8602 & CD	CS8603 & DS	
		IV	GE8076 & PE	CS8080 & IRT				
3	EEE	II	EE3404 & MPMC	EE3405 & EM II	EE3401 & TD	EE3403 & MI	GE3451 & EVS	EE3402 & LJC
		III	EE8601 & SSD	EE8602 & PSG	EE8691 & ES	EE8005 & SEM	EE8002 & DEA	
		IV	EE8015 & EEG	EE8018 & MCB				
4	ECE	II	EC3452 & EMF	EC3401 & NS	EC3491 & CS	EC3451 & LJC	GE3451 & EVS	EC3492 & DSP
		III	MG8591 & POM	EC8651 & TLR	EC8691 & MPMC	EC8652 & WC	EC8095 & VLSI	
		IV	GE8076 & PE	EC8094 & SATCOM				
5	MECH	II	ME3491 & TOM	ME3451 & TE	ME3493 & MMT-II	ME3492 & H&P	GE3451 & EVS	CE3491 & SM
		III	ME8651 & DTS	ME8691 & CAD/CAM	ME8693 & HMT	ME8692 & FEA	ME8694 & HP	
		IV	MG8591 & POM	ME8094 & CIM				
6	AGRI	II	AI3401 & TES	AI3402 & SWC	AI3403 & SOM	CE3691 & HW	GE3451 & EVS	ME3391 & TD
		III						
		IV						
7	AI&DS	II	MA3391 & PS	AL3452 & OS	AL3451 & ML	AD3491 & FDS	GE3451 & EVS	CS3591 & CN
		III						
		IV						
8	IT	II	CS3452 & TOC	CS3491 & AI	CS3492 & DBMS	IT3491 & WE	GE3451 & EVS	CS3451 & OS
		III	IT8601 & CI	CS8592 & OOAD	IT8602 & MC	CS8091 & BDA	CS8092 & CGM	
		IV	GE8076 & PE	CS8080 & IRT				

*[Signature]*  
Exam cell Coordinator

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*[Signature]*  
Principal

**Indra Ganesan College of Engineering**  
Manikandam, Trichy- 620012

Branch: IT	Year /Sem: III/6
Date: 13.3.23	Time: 90min
Subject Code/Name: CS8592 - OOAD	Max. Marks: 50
Retest - I	

**Answer All the Questions Part - A (10×2=20)**

		CO's	K
1	State and explain the three perspectives of using UML.	01	K1
2	Analysis in OOAD.	01	K3
3	What is meant by use cases, scenario and actor?	02	K2
4	Write case diagrams?	02	K2
5	What do you mean by Include? Give an example.	02	K2
6	What are the models that are created in OOAD.	01	K2
7	State the 3 ways of using UML suggested by Martin Fowler	01	K1
8	Refine Unified Process.	01	K1
9	Refine OOAD	01	K1
10	What is Unified process	01	K2

**Part - B (2×10=20)**

		CO's	K
11 a	Explain in detail about Actor, Scenarios, use cases and 4+1 view	02	K2
(OR)			
11 b	Explain about Unified Process.	02	K2
12 a	Explain in detail about relating Use cases, when to use use cases	01	K1
(OR)			
12 b	What is UML, Explain in detail about UML diagrams with example.	01	K1

**Part - C (1×10=10)**

		CO's	K
13 a	Describe the use case model for online exam	01	K2
(OR)			
13 b	Explain the benefits and concepts of use case and use case model	01	K2



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# INDRA GANESAN COLLEGE OF ENGINEERING

IG Valley, Manikandam, Tiruchirappalli, Tamil Nadu – 622 012, India

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## Internal Assessment Test Answer Book

Name	Y. Thasheem Begam			Year/ Semester/Section	III / VI
Batch No.	2022-23	Date/Session	7.3.23/FN	Department	IT
Course code	CS8592	Course Title	OOD		
Internal Assessment Test	IAT 1	<input checked="" type="checkbox"/>	IAT 2	<input type="checkbox"/>	IAT 3 <input type="checkbox"/> Model <input type="checkbox"/>
Name and Signature of the Invigilator with date			V. Suresh		

Instruction to the Student: Put tick mark to the question attended in the column against question.							
Part A			Part B / Part C				Total Marks
Q. No.	✓	Marks	Q. NO.	✓	a	b	
					Marks	Marks	
1	✓	2	11	✓	10	10	10
2	✓	2	12	✓	10	10	10
3	✓	2	13	✓	10	10	10
4	✓	2	14	✓	10	10	10
5	✓	0	15	✓	10	10	10
6	✓	2	16	✓	10	10	10
7	✓	1	Total				30
8	✓	2	46				
9	✓	2					
10	✓	1					
Total		16	Grand Total				Name and Signature of the Examiner with date

To be filled by the examiner							
Course Outcomes	1	2	3	4	5	6	Total
Marks allotted	32	18					50
Marks Obtained	30	16					46
IQAC Audit - Remarks							
Name and Signature of the IQAC member							

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# INDRA GANESAN COLLEGE OF ENGINEERING

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## IQAC Academic Audit Form

ACADEMIC YEAR: 2022-2023 EVEN SEMESTER

Name of Department : IT Year / Sem : 3 / VI No. of Students Registered : 42  
Details of Examination : IA Test -1 / IA Test -2 / IA Test -3 / Model Test

S.No.	Course Code	List of Reg.No Verified	Course Log Book Verified (Y / N)	Course File Verified (Y / N)	No of students Attended	No of Absentees	No of Failures	Pass %	Remarks
1.	IT8601	811220205001	Y	Y	42	1	3	92%	—
2.	CS8592	811220205047	Y	Y	42	1	2	95%	—
3.	IT8602	811220205005	Y	Y	42	1	1	97%	—
4.	CS8091	811220205012	Y	Y	42	1	3	92%	—
5.	CS8092	811220205021	Y	Y	42	1	2	95%	—
6.	IT8076	811220205036	Y	Y	42	1	3	92%	—

Verified by

External Member Name and Signature:

Dr. K. Vijayakumar & K. K. K.

Internal Member Name and Signature:

Dr. V. Nancy & V. Nancy

Overall Remarks:

HoD/ IT

IQAC Co-ordinator

Principal

Dr. G. Balakrishnan, M.E., Ph.D.

Principal

Indra Ganesan College of Engineering

IG Valley, Madurai Main Road

Manikandam, Trichy-620 012.

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## DEPARTMENT OF INFORMATION TECHNOLOGY

### ROOT CAUSE ANALYSIS

Name of the Faculty : S. Surya, AP/IT  
Degree & Program : B.Tech(IT)  
IA Test : I  
Target : 95 %

Course Code & Name : CS8592 & DDAD  
Semester : VI  
University Exam/Month & Year: May/June 2023  
Achieved : 80 %

S.NO	ROLL NO	NAME OF THE STUDENT	CAUSES FOR FAILURE	CORRECTIVE ACTION TAKEN	PREVENTIVE ACTION TAKEN
1.	811220205048	V. Thiruvananthi	Log fracture	Retest	Special Coaching



Signature of the Faculty Member



Signature of the HoD/IT



Dr. G. Balakrishnan, M.E., Ph.D.

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