Course Information Sheet

Programme/Course: 2019	Class: SE(Information Technology)	A.Y. 2023-24 Sem. IV

Course Code: (214444) (Theory)	Course : Object Oriented Programming
Course Teacher: A.B.Bavane	Department: Information Technology

Teaching Scheme			Examination Scheme					
			Theory			Lab		
Theory	Practical	Tutorial	Online/ Insem	Endsem	Sessional	Term Work	Practical	Oral
(hrs/week)	(hrs/week)	(hrs/week)						
3 hrs	02hrs	0 hrs	30	70	---	25	25	---

Prerequisite Courses -
Principles of Programming Languages

Delivery Methods (DM)

Chalk & Talk	ICT Tools	Group Discussion	Industrial/ Field Visit	Expert Talk	Survey	Mini project	Lab
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Course Objectives

Sr. No	Course Objective
1	Apply concepts of object-oriented paradigm.
2	Design and implement models for real life problems by using object-oriented programming
3	Develop object-oriented programming skills.

Course Outcomes (COs)

Sr. No	Course Outcome Statement
1	Differentiate various programming paradigms.
2	Identify classes, objects, methods, and handle object creation, initialization, and Destructi problems.
3	Identify relationship among objects using inheritance and polymorphism principles.
4	Handle different types of exceptions and perform generic programming.
5	Use of files for persistent data storage for real world application
6	Apply appropriate design patterns to provide object-oriented solutions.

Program Outcomes (POs):

Engineering Graduates will be able to:

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

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

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

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

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

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

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

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

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

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

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

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

Program Specific Outcomes (PSO):

PSO1- An ability to apply the theoretical concepts and practical knowledge of Information Technology in analysis, design, development and management of information processing systems and applications in the interdisciplinary domain.

PSO2 -An ability to analyze a problem, and identify and define the computing infrastructure and operations requirements appropriate to its solution. IT graduates should be able to work on large-scale computing systems.

PSO3- An understanding of professional, business and business processes, ethical, legal, security and social issues and responsibilities.

PSO4-Practice communication and decision-making skills through the use of appropriate technology and be ready for professional responsibilities.

Basic Mapping of Course Outcome (CO) with Program Outcome (PO) and Program Specific Outcome (PSO) considering only syllabus
1: Slight (Low) 2: Moderate (Medium) 3: Substantial (High)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
C205.1	3	3	2	2	2	-	-	-	-	-	-	2
C205.2	3	3	2	2	2	-	-	-	-	-	-	2
C205.3	3	3	2	2	2	-	-	-	-	-	-	2
C205.4	3	3	2	2	2	-	-	-	-	-	-	2
C205.5	3	3	2	2	2	-	-	-	-	-	-	2
C205.6	3	3	2	2	2	-	-	-	-	-	-	2
Avg.	3	3	2	2	2		-	-	-	-	-	2
PO	3	3	2	2	2	-	-	-	-	-	-	2

Assessment pattern

Assessment type	Assessment tool
Direct attainment	Internal Examination (10 Marks) Assignment(10 Marks) Insem Examination (30Marks) End semester examination (70 Marks)
Indirect Attainment	Course end semester feedback

CO Attainment Target Levels

Assessment Methods	Attainment Level	
Internal Examination-1 Test (10 Marks)	Threshold value: for Test (10 Marks) the threshold value is 40 % of their total i.e 0.4 * (10)> 4 Marks	
	Level 1	41-50 % of students scoring more than 4 marks in Test
	Level 2	51-74 % of students scoring more than 4 marks in Test
	Level 3	>=75% of students scoring more than 4 marks in Test

Internal Examination-1	For Assignment (10) question wise threshold value is 50% of respective question marks i.e 0.5*10 >4Marks	
Assignment (10 Marks)	Level 1	55-64% of students scoring more than 5 marks question/ CO wise out of maximum 10 Marks
	Level 2	64-74% of students scoring more than 5 marks question/ CO wise out of maximum 10 Marks
	Level 3	>=75% of students scoring more than 5 marks question/ CO wise out of maximum 10 Marks
Insem Examination (30 Marks)	Level 1	51 % of students scoring pass marks 12 or >12 out of 50 in Insem examination
	Level 2	61% of students scoring pass marks 12 or >12 out of 50 in Insem examination
	Level 3	71% of students scoring pass marks scoring pass marks 12 or >12 out of 30 in Insem examination
End Semester Examination (70 Marks)	Level 1	51 % of students scoring pass marks 28 or >28 out of 70 in End semester examination
	Level 2	61% of students scoring pass marks 28 or >28 out of 70 in End semester examination
	Level 3	71% of students scoring pass marks 28 or >28 out of 70 in End semester examination

Computation of direct CO Attainment

Assuming 80% weightage to University examination and 20% weight age to internal assessment,

Computation of Direct Attainment of CO

CO's	Assessment Tool (Internal –External)		Internal Examination		External Examination			CO Attainment = [(0.2 * IE Attainment level)+ (0.8 * EEAttainment level)]
			Attainmentt level	Average Attainmen tLevel	Insem Examination	End semester Examinatio n	Average Attainme nt Level	
CO1	IE-1	Internal Test -1	3 (100%)	3	3(100%)	3(100%)	3	3
		Assignment 1	3 (100%)					
CO2	IE-2	Internal Test -2	3 (100%)	3	3(100%)	3(100%)	3	3
		Assignment 2	3 (100%)					
CO3	IE-3	Internal Test -3	3 (100%)	3		3(100%)	3	3
		Assignment 3	3 (100%)					
CO4	IE-4	Internal Test -4	3 (100%)	3		3(100%)	3	3
		Assignment 4	3 (100%)					
CO5	IE-5	Internal Test -5	3 (100%)	3		3(100%)	3	3
		Assignment 5	3 (100%)					
CO6	IE-6	Internal Test -6	3 (100%)	3		3(100%)	3	3
		Assignment 6	3 (100%)					

Computation of CO Indirect Attainment

CO's	CO 1	CO2	CO 3	CO 4	CO 5	CO 6
Students Answered level 1	2	1	3	3	1	1
Students Answered level 2	7	4	3	5	2	3
Students Answered level 3	60	65	64	62	67	66
Total No. of Students Participated	70	70	70	70	70	70
Attainment	**2.8**	**2.9**	**2.9**	**2.8**	**2.9**	**2.9**

Attainment of CO in Course Object Oriented programming (214444)= [(Level 1 * No. of Students Attempted) +(Level 2 * No. of Students Attempted)+(Level3 * No. of Students Attempted)] / No. of Students
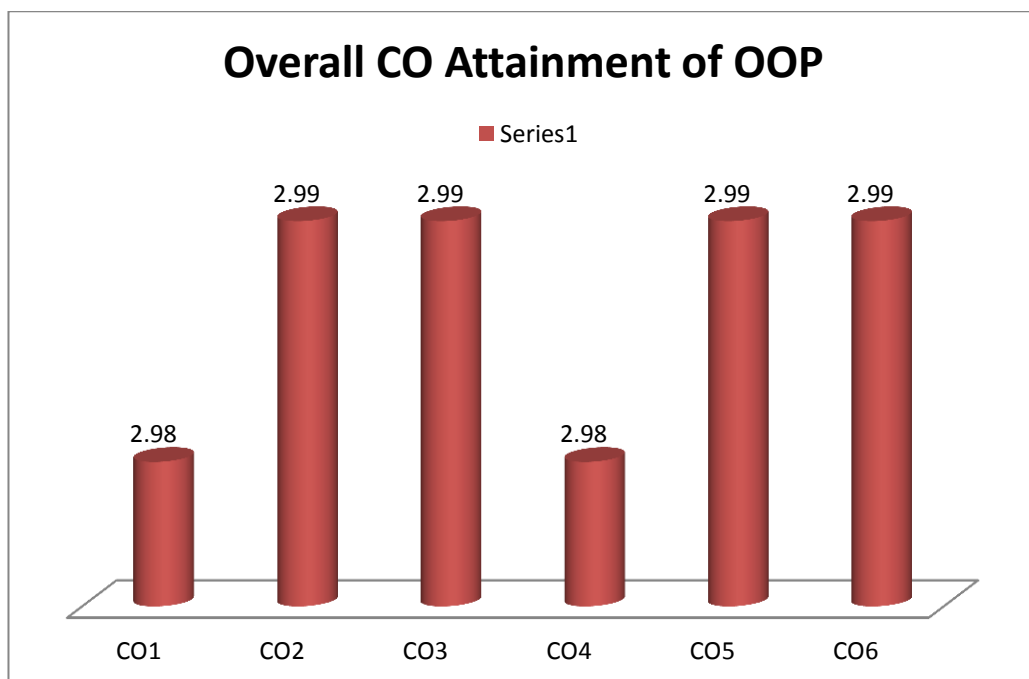
Computation of CO Overall Attainment

Computation of Overall CO attainment for the course

90% of direct CO attainment + 10 % of Indirect CO attainment

CO	Direct Attainment Level	Indirect Attainment level	Overall CO Attainment level = $[(0.9* DA) +(0.1 * IDA)]$
C305.1	3	2.86	2.99
C305.2	3	2.86	2.99
C305.3	3	2.87	2.99
C305.4	3	2.87	2.99
C305.5	3	2.87	2.99
C305.6	3	2.86	2.99
Avg			**2.99**

Overall CO Attainment of OOP

■ Series1

2.98	2.99	2.99	2.98	2.99	2.99
CO1	CO2	CO3	CO4	CO5	CO6

PO attainment = (PO mapped level / 3) * CO attainment

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3	PSO 4
Weighted	3	2	2	-	3	-	-	-	-	-	-	2	3	2	-	-
Po /PSO Attainment	3	2	2	-	2							2	3	2	-	

CO-PO-PSO Attainmment

■ Weighted   ■ Po Attainment
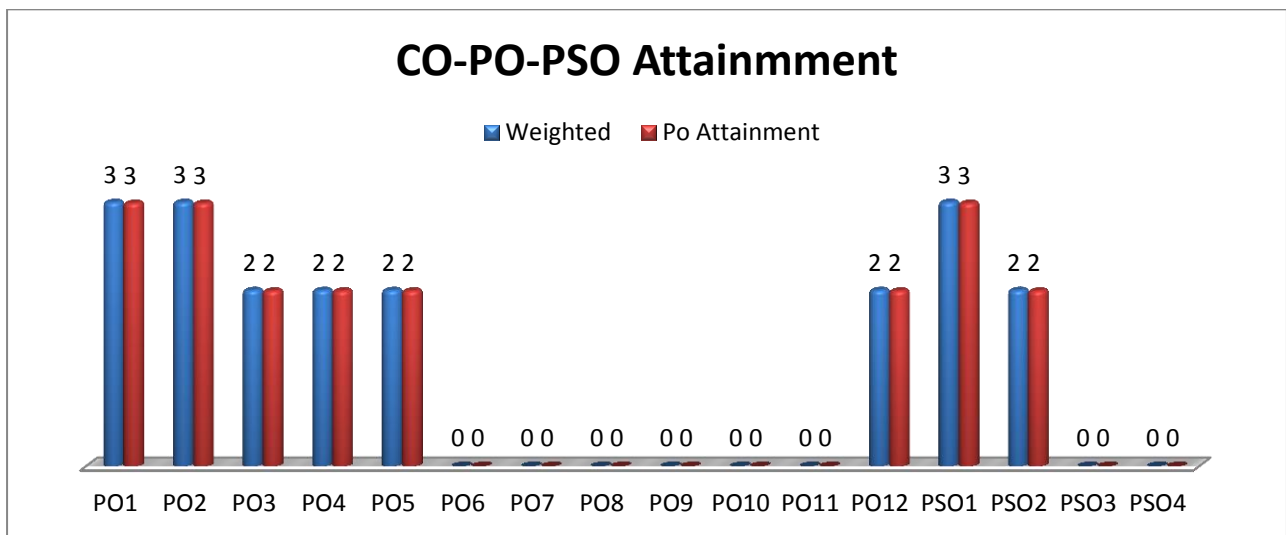
Lecture Delivery details

Number of Lecture Scheduled: 36
Number of Lecture Conducted: 38

Prof.Ms.A.B.Bavane.
Course Teacher

HOD
Information Technology

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