



SWARNANDHRA

COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS)

Accredited by National Board of Accreditation, AICTE, New Delhi, Accredited by NAAC with "A" Grade – 3.32 CGPA, Recognized under 2(f) & 12(B) of UGC Act 1956, Approved by AICTE, New Delhi, Permanent Affiliation to JNTUK, Kakinada Seetharampuram, W.G.DT., Narsapur-534280, (Andhra Pradesh)

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING							
Course Code	Course Title		Semester	Branch	Contact Periods /Week	Academic Year	Date of commencement of Semester
20AM7E08	Object Oriented Analysis And Design		VII	AIML	5	2025-26	09-06-2025
Pre-requisites:			Object Oriented Programming				
S. No	Course Outcomes						Knowledge Level
1	Analyze the nature of complex system and its solutions.						K3
2	Illustrate & relate the conceptual model of the UML, identify & design the classes and relationships.						K3 & K4
3	Analyze & Design Class and Object Diagrams that represent Static Aspects of a Software System and apply basic and Advanced Structural Modeling Concepts for designing real time applications.						K3 & K4
4	Analyze & Design behavioral aspects of a Software System using Use Case, Interaction and Activity Diagrams.						K3 & K4
5	Analyze & Apply techniques of State Chart Diagrams and Implementation Diagrams to model behavioral aspects and Runtime environment of Software Systems.						K3 & K4
Unit	Out Comes / Bloom's Level	Topics No.	Topics/Activity		Text Book / Reference	Contact Hour	Delivery Method
UNIT-I: Introduction							
I	CO1: Analyze The Structure of Complex systems. (K1,K2)	1.1.1	Introduction		T1	2	Chalk ,talk
		1.1.2	Structure of Complex systems		T1	2	Chalk ,talk
		1.1.3	The Inherent Complexity of Software		T1	2	Chalk ,talk
		1.1.4	Attributes of Complex System		T1	1	Chalk ,talk
		1.1.5	Organized Complexity and Disorganized Complexity		T1	1	Chalk ,talk
		1.1.6	Bringing order to chaos		T1	1	Chalk, Talk
		1.1.7	Designing Complex System		T1	1	Chalk, Talk,
		1.2.1	Case Study: System Architecture		T1	1	PPT
		1.2.2	Satellite-Based Navigation		T1	1	Web Resources
Revision of Complex Systems						1	PPT
Total						13	
UNIT-II: Introduction to UML							
II	CO2: Illustrate & relate the conceptual model of the	2.1.1	UML introduction		T2	2	Chalk ,talk
		2.1.2	Importance of modeling		T2	1	Web Resources

	UML, identify & design the classes and relationships. (K3,K6)	2.2.1	Principles of modeling	T2	1	Chalk , talk
		2.2.2	Object Oriented modeling	T2	1	Chalk ,talk
		2.2.3	Conceptual model of the UML	T2	2	Web Resources
		2.3.1	Architecture of UML	T2	1	Web Resources
		2.3.2	Life Cycle of Software Development	T2	1	Chalk,talk, PPT
		2.3.3	Basic Structural Modeling	T2	1	PPT
		2.3.4	Classes	T2	1	Web Resources
		2.3.5	Relationships	T2	1	Chalk ,talk
		2.3.6	common Mechanisms and diagrams	T2	2	Web Resources
		2.4.1	Case Study : Control system	T2	2	Web Resources
		2.4.2	Traffic Management	T2	1	PPT
			Revision of UML concepts		1	Talk
Total					18	
UNIT-III: Class & Object Diagrams						
III	CO3: Analyze & Design Class &Object Dia-grams that re-present Static Aspects of a Software System and apply basic and Advanced Structural Modeling Concepts for designing real time applications. (K3 ,K4)	3.1.1	Terms of Class & Object Diagrams	T1	1	Chalk ,talk
		3.1.2	Concepts of Class & Object Diagrams	T1	1	Chalk ,talk
		3.1.3	Modeling techniques for Class Diagrams	T1	2	Web Resources
		3.1.4	modeling techniques for Object Diagrams	T1	1	NPTEL Video
		3.1.5	Advanced structural modeling: Advanced classes	T1	1	PPT
		3.2.1	Advanced relationships	T3	2	PPT
		3.2.2	Interfaces, Types and Roles of Packages.	T3	2	Web Resources
		3.2.3	Case Study: AI: Cryptanalysis.	T3	2	Chalk ,talk
Revision of Advanced Structural Modeling					1	PPT
Total					13	
UNIT-IV: Basic Behavioral Modeling-I						
IV	CO4: Analyze & Design behavioral aspects of a Software System	4.1.1	Introduction to Basic Behavioral Modeling:	T1	1	PPT
		4.1.2	Interactions	T1	1	Web Resources
		4.1.3	Interaction diagrams	T1	2	Chalk ,talk

	using Use Case, Interaction and Activity Diagrams. (K1,K3)	4.1.4	Use case diagrams	T1	1	PPT
		4.1.5	Activity Diagrams.	T1	2	Chalk ,talk
		4.2.1	Case Study: Web Application	T3	1	Web Resources
		4.2.2	Vacation Tracking System	T3	2	Web Resources
Revision of Use cases					1	Chalk ,talk, ppt
Total					11	

UNIT-V: Advanced Behavioral Modeling

V	CO5: Analyze & Apply techniques of State Chart Diagrams and Implementation Diagrams to model behavioral aspects and Runtime environment of Software Systems. (K2 ,K3)	5.1.1	Events and signals	T3	1	Web Resources
		5.1.2	State machines	T3	1	Chalk ,talk
		5.1.3	Processes	T3	2	Chalk ,talk, ppt
		5.2.1	Threads	T3	2	PPT
		5.2.2	Time and Space	T3	1	Web Resources
		5.2.3	state chart diagrams	T3	2	Chalk ,talk
		5.3.1	Architectural modeling: Component, Deployment	T3	2	Web Resources
		5.3.2	Component diagrams and Deployment diagrams.	T3	2	Chalk ,talk, ppt
		5.4.1	Case study: Weather forecasting	T3	1	Chalk ,talk, ppt
Revision of Architectural Modeling					1	PPT
Total					15	
CUMULATIVE PROPOSED PERIODS					70	

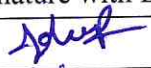
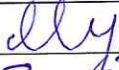
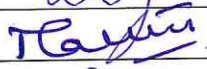

Text Books:

S. No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Grady Booch, Robert A. Maksimchuk, Michael W. Engle, Bobbi J. Young, Jim Conallen, Kellia Houston , “Object- Oriented Analysis and Design with Applications”, 3rd edition, Pearson,2013.
2	Grady Booch, James Rumbaugh, Ivar Jacobson: The Unified Modeling Language User Guide, Pearson Education.

Reference Books:

S. No.	AUTHORS, BOOK TITLE, EDITION, PUBLISHER, YEAR OF PUBLICATION
1	Meilir Page-Jones: Fundamentals of Object Oriented Design in UML, Pearson Education.
2	Pascal Roques: Modeling Software Systems Using UML2, WILEY- Dreamtech India Pvt. Ltd.
3	Atul Kahate: Object Oriented Analysis & Design, The McGraw-Hill Companies

4.	Craig Larman, Applying UML and Patterns: An introduction to Object – Oriented Analysis and Design and Unified Process, , Pearson Education.
Web Details	
1	https://www.rgmcet.edu.in/assets/img/departments/CSE/materials/R15/3-2/OOAD.pdf
2	https://www.tutorialspoint.com/object_oriented_analysis_design/ooad_tutorial.pdf
3	https://stucor.in/notes-qp/cs8592-object-oriented-analysis-and-design/
4	https://www.iare.ac.in/sites/default/files/IARE_OOAD_LECTURE%20NOTES_ALL_UNITS.pdf
5	https://paris.utdallas.edu/reu/document/05-Slides/11-Mehra-Borazjany-OOAD-Part1.pdf

		Name	Signature with Date
i.	Faculty	Mr.Sandeep Utala	
ii.	Course Coordinator	Dr.G.Sudhakar	
iii.	Module Coordinator	Mr.K.V.N.A.S.M.Prasad	
iv.	Program Coordinator	Dr.B.Rama krishna	


Principal