

**TECNIA INSTITUTE OF ADVANCED STUDIES**  
**GRADE 'A' INSTITUTE**  
 Department of Information Communication & Technology  
**COURSE PLAN**  
**ACADEMIC SESSION 2024-25**

# As per Scheme & Syllabus (w.e.f. Academic Session 2024-2025 onwards); As per UGC Curriculum & Credit Framework for Undergraduate Programme (CCFUP) (Dec 2022) Guru Gobind Singh Indraprastha University, New Delhi.

PROGRAMME CODE:	020	PROGRAMME:	Bachelor of Computer Applications (BCA)	SHIFT:	1st					L	4	T/P	0	Credits	4
COURSE CODE :	BCA-108T	COURSE NAME:	Software Engineering	SECTION:	A										
		COURSE TYPE:	Core Course Theory (CCT)	FACULTY:	Mr. Abhishek Maheswari										

The paper aims to understand the importance, limitations and challenges of processes involved in software development. In this course, the learners will be able to develop expertise related to the following:

1. To gain knowledge of various software models.
2. To gain knowledge of various software design activities.
3. To learn cost estimation, software testing, Maintenance and debugging.

PREREQUISITE: None

**COURSE OUTCOME & MAPPING, COURSE ARTICULATION**

		DISCIPLINARY KNOWLEDGE: Disciplinary Knowledge: Apply the knowledge of computer application concepts and domain knowledge to solve the problems in IT domain/IT industry	PROBLEM ANALYSIS: Identify, formulate, review research literature, and analyse complex computer application problem at their workplace and for the society.	DESIGN /DEVELOPMENT OF SOLUTIONS: Design and evaluate solutions for computer applications problems, and design the program that meet specified needs with appropriate consideration for the public health, safety, cultural, societal, and environmental considerations.	MODERN TOOL USAGE: Create, select, adapt and apply appropriate techniques, resources, and modern computing tools to complex computer application activities, with an understanding of the limitations	PROFESSIONAL ETHICS: Understand and commit to professional ethics and cyber regulations, responsibilities, and norms of professional computing practices.	LIFE-LONG LEARNING: Recognize the need, and have the ability, to engage in independent learning for personal development as a computing professional.	PROJECT MANAGEMENT AND FINANCE: Demonstrate knowledge and understanding of the computing and manage projects and in multidisciplinary environments.	COMMUNICATION EFFICACY WITH COOPERATION/TEAMWORK: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions. Function effectively as an individual and as a member of a team.	SOCIETAL AND ENVIRONMENTAL CONCERN: Understand and assess societal, environmental, health, safety, legal, and cultural issues within local and global contexts, and the consequential responsibilities relevant to professional computing practices.	INNOVATION AND ENTREPRENEURSHIP: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.
CO - PO MAPPING		PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
CO1	Instantiating into the process of designing, coding and testing a software module. Implementing Software Development Life Cycle(SDLC) to develop a software module	4	2	4	4	3	4	1	1	3	4
CO2	Organizing a software product along with its complete documentation	4	2	4	2	3	4	1	3	1	4
CO3	To analyze the use of techniques, skills and modern engineering tools necessary for software development.	4	1	4	4	1	4	1	1	1	4
CO4	Organizing a complete software module according to SDLC	4	2	4	4	3	4	1	1	1	4
Course Articulation (Average)		4	3	4	3.5	1	4	1	3.5	1	4

*AD*

*Dr. Rajesh Kumar  
(HOD-BCA)*

HoD  
BCA-TIAS

S. No.	Lecture No.	Unit No.	Topic	Sessional Outcome	Experiential Learning	Participative Learning	Problem Solving Methodologies	ICT Tools & E-Resources Utilization	Mapping with CO	Class Material (PPT Faculty/Students)	Additional Material (links/ Journals/ Articles/ News)	Mode of Assessment	Status
1	L1	1	Introduction to software, processes of a software and the characteristics of a software	Understand the basics of software, its processes and characteristics		Lecture Through PPT		<a href="https://www.geekforgeeks.org/software/">https://www.geekforgeeks.org/software/</a>	CO1	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
2	L2	1	Capability Maturity Model	Evaluate the use of Capability Maturity Model		Lecture Through PPT		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO1	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
3	L3	1	Software life cycle models, types of models, Waterfall model	Evaluate and implement the types of Software life cycle models	Demonstration	Lecture Through PPT	Case study	<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO1, CO4	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
4	L4	1	software process, Software development life cycle, CMM (Tutorial of Lecture 1,2 &3)	Understand the topic SDLC, CMM, and software processes		Discussion/ Doubt Clearing session		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO1, CO5		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
5	L5	1	Prototype model	Understand and implement the Prototype model	Mini projects	Lecture Through PPT		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO4	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
6	L6	1	Evolutionary Model	Understand and implement the Evolutionary Model		Lecture Through PPT		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO4	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Flipped Classroom	
7	L7	1	Rapid Action Development (RAD) model	Understand and implement the Rapid Action Development (RAD) model		Lecture Through PPT		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO4	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Questions from Assignment	
8	L8	1	Revision of prototype, evolutionary, and RAD model (Tutorial of Lecture 4,5 &6)	Understand the topic prototype, evolutionary, and RAD model		Discussion/ Doubt Clearing session		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO5		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion	
9	L9	1	Spiral model, Comparison between various software models	Implement the Spiral model and compare it with all the other software models		Group Discussion		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO4	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion	
10	L10	1	Requirement engineering, Requirement elicitation techniques: brainstorming	Analyze the use of requirement engineering and requirement elicitation	Service learning	Lecture Through PPT	Practical	<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO5	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
11	L11	1	Requirement analysis, Data Flow Diagram	Instantiating into the process of designing Data Flow Diagram	Service learning	Lecture Through PPT	Practical	<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO2	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
12	L12	1	Revision of spiral model, requirement engineering and data flow diagram (Tutorial of Lecture 7,8 &9)	Understand the topic spiral model, requirement engineering and data flow diagram		Discussion/ Doubt Clearing session		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO3		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion	
13	L13	1	DFD case study	Develop Data Flow Diagrams by analysing the given case study		Flipped Classroom		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO3	Student PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
14	L14	1	Entity Relationship Diagram, Data Dictionary	Organise the suitable ER diagram.	Demonstration	Flipped Classroom		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO3	Student PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Flipped Classroom	
15	L15	1	Requirement documentation, Software Requirement Specification document	Create Specification Requirement documentation		Lecture Through PPT	Practical	<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO3	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
16	L16	1	Revision of DFD, ER diagram and SRS document (Tutorial of Lecture 10,11 &12)	Understand DFD, ER diagram and SRS document		Discussion/ Doubt Clearing session		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO4		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion	
17	L17	1	Characteristics of SRS, Organisation of SRS	Create the SRS documentation	Live project	Lecture Through PPT		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO1, CO3	Notes	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Flipped Classroom	
18	L18	2	Introduction to Software Project Management: People, Project, Process, Problem	Understand different aspects of software project management	Job shadowing	Lecture Through PPT		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO1	PPT & Notes	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects	
19	L19	2	Introduction to software planning, software size estimation	Implement the basics of software planning and size estimation	Demonstration	Flipped Classroom		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO2	Student PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	VIVA	
20	L20	2	Revision of project estimation, software planning and SRS (Tutorial of Lecture 13,14 & 15)	Understand project estimation, software planning and SRS		Discussion/ Doubt Clearing session		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO3		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion	
21	L21	2	Software size estimation using Lines of code technique	Calculate the size of software using LOC technique	Demonstration	Lecture Through PPT	Brainstorming	<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO2	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	
22	L22	2	Software size estimation using Function count technique	Estimate the size of software using Function count technique		Flipped Classroom		<a href="https://www.geekforgeeks.org/software-engineering/">https://www.geekforgeeks.org/software-engineering/</a>	CO2	Student PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT (CIA)	

*ADP*

*DR. RAJESH KUMAR (HOD - BBA)*

HoD  
BCA-TIAS

23	L23	2	Cost Estimation model: COCOMO	Estimate the cost of software using COCOMO model		Lecture Through PPT	Practical	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
24	L24	2	Revision of cocomo model, function point (Tutorial of Lecture 16,17 & 18)	Understand cocomo model, function point		Discussion/ Doubt Clearing session		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion
25	L25	2	Software Risks, Risk Identification, Risk Projection	Implement the various Software Risks and methods for identifying them		Lecture Through PPT		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
26	L26	2	Risk Mitigation, Monitoring and Management	Analyse the risk mitigation, monitoring and management		Lecture Through PPT		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
27	L27	3	Cohesion & Coupling	Apply the concept of Cohesion & Coupling on various modules of software	Demonstration	Lecture Through PPT		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO5	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
28	L28	3	Revision cohesion and coupling, risk management (Tutorial of Lecture 19,20 &21)	Understand cohesion and coupling, risk management		Discussion/ Doubt Clearing session		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO6		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion
29	L29	3	Classification of cohesiveness and coupling	Analyse the various types of cohesiveness and coupling		Flipped Classroom		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3	Student PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects
30	L30	3	Layered arrangement of software modules	Implement the layered arrangement of software modules		Flipped Classroom		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO1	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects
31	L31	3	Function oriented design	Organize Function oriented design of software	Demonstration	Flipped Classroom	Practical	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects
32	L32	3	Revision of classification of cohesion and coupling, Function oriented design, software modules (Tutorial of Lecture 22,23 &24)	Understand classification of cohesion and coupling, Function oriented design, software modules		Discussion/ Doubt Clearing session		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO4		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion
33	L33	3	Object oriented design	Organize Object oriented design of a software	Demonstration	Lecture Through PPT	Practical	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects
34	L34	3	Software metrics	Design various Software metrics		Lecture Through PPT		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects
35	L35	3	Token count	Calculate the Token count for a software	Student teaching	Lecture Through PPT		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects
36	L36	3	Revision of token count, Object oriented design, software metrics (Tutorial of Lecture 25,26 &27)	Understand token count, Object oriented design, software metrics		Discussion/ Doubt Clearing session		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>			<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion
37	L37	3	Halstead software	Understand and Implement Halstead		Lecture Through PPT		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects
38	L38	3	Design metrics	Implement various Design metrics		Lecture Through PPT		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	VIVA and Presentation
39	L39	4	Software testing, testing process	Instantiate the process of Software testing	Demonstration	Lecture Through PPT	Brainstorming	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
40	L40	4	Revision of Halstead software, design metrics and software metrics (Tutorial of Lecture 28,29 &30)	Understanding of Halstead software, design metrics and software metrics		Discussion/ Doubt Clearing session		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion
41	L41	4	Functional testing	Perform Functional testing	Student teaching	Lecture Through PPT	Practical	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
42	L42	4	Structural testing	Perform Structural testing		Lecture Through PPT	Practical	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
43	L43	4	Unit testing	Perform Unit testing		Lecture Through PPT	Practical	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Mini Projects
44	L44	4	Revision of unit testing, Structural testing	Clear doubt		Discussion/ Doubt Clearing session		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion
45	L45	4	Integration testing	Perform Integration testing	Student teaching	Lecture Through PPT	Practical	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
46	L46	4	System testing	Perform System testing		Lecture Through PPT	Brainstorming	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	VIVA
47	L47	4	Validation Testing	Instantiate the concept of Validation testing		Lecture Through PPT	Practical	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO2	PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)
48	L48	4	Revision of Integration, system and validation testing (Tutorial of Lecture 31,32 &33)	Understanding of Integration, system and validation testing		Discussion/ Doubt Clearing session		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3		<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	Group Discussion
49	L49	4	Debugging techniques	Analyse various Debugging techniques	Demonstration	Lecture Through PPT		<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO5	Notes & PPT	<a href="https://scholar.google.com/scolar?q=software+engineering">https://scholar.google.com/scolar?q=software+engineering</a>	PPT(CIA)

Dr. Arunesh Kumar  
140P-BCA  
BCA-TIAS

50	L50	4	Software maintenance	Analyze the process of Software maintenance		Lecture Through PPT	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	COS	PPT	<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	Questions from Assignment
51	L51	4	Maintenance Metrics	Analyze various metrics for software maintenance	Student teaching	Flipped Classroom	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	COS	Student PPT	<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	PPT(CIA)
52	L52	4	Revision of Debugging techniques, software maintenance and maintenance metrics (Tutorial of Lecture 37,38 &39)	Understanding of Debugging techniques, software maintenance and maintenance metrics		Discussion/ Doubt Clearing session	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>			<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	Group Discussion
53	L53	4	Reverse engineering	Analyze the concept of Reverse	Mini projects	Lecture Through PPT	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	COS	Notes & PPT	<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	PPT(CIA)
54	L54	4	Configuration management	Analyze configuration management for a software	Mini projects	Lecture Through PPT	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	COS	PPT	<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	PPT (CIA)
55	L55	4	Documentation	Organize the process of Software Documentation	Externship	Lecture Through PPT	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3	Notes & PPT	<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	Flipped Classroom
56	L56	4	Revision of software documentation, configuration management and reverse	Understanding of software documentation, configuration		Discussion/ Doubt Clearing session	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	CO3		<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	Group Discussion
57	L57	4	Software quality assurance	Analyse the use of Software quality management	Externship	Lecture Through PPT	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	COS	PPT	<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	Group Discussion
58	L58	4	Types of maintenance	Understanding types of maintenance		Lecture Through PPT	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	COS	PPT	<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	PPT(CIA)
59	L59	4	Different testing techniques	Understanding Different testing techniques		Lecture Through PPT	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>	COS	PPT	<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	PPT(CIA)
60	L60	4	Revision of software quality assurance and types of maintenance (Tutorial of Lecture 43,44 &45)	Understanding of software quality assurance and types of maintenance		Discussion/ Doubt Clearing session	<a href="https://www.geeksforsforgeeks.org/software-engineering/">https://www.geeksforsforgeeks.org/software-engineering/</a>			<a href="https://scholar.google.com/scholar?q=software+engineering">https://scholar.google.com/scholar?q=software+engineering</a>	Group Discussion

Note : 1 Credit (Theory) =15 Hrs. in a Semester, 1 Credit (Practical) =30 Hrs. in a Semester.

TEXTBOOKS

191  
192  
193  
194

R. Elmasri and S.B Navathe, "Fundamentals of Database Systems", Pearson, 3th Ed.
Singh S.K., "Database System Concepts, design and applications", Pearson Education [TM] TRS.
Ramakrishnan and Gheke, "Database Management Systems", TMH.
Rajin Dasal, "An Introduction to Database Systems", Galgotia Publications, 1991.

References

191  
192  
193

Abraham Silberschatz, Henry Korth, S. Sudarshan, "Database Systems Concepts", 6th Edition, McGraw
Jim Melton, Alan Simon, "Understanding the new SQL: A complete Guide", Morgan Kaufmann Publish
A. K. Majumder, P. Rattacharya, "Database Management Systems", TMH, 2017

Name of Faculty :

Mr. Abhishek Maheswar

Head of Department :

HOd  
BCA-TIAS

JOURNALS

1. Journal of Computer Science and Technology
2. International Journal of Computer Applications
3. Journal of Educational Computing Research
4. ACM Transactions on Programming Languages and Systems (TOPLAS)
5. International Journal of Programming Languages and Compilers
6. Computer Applications in Engineering Education
7. Journal of Computer Science Education
8. The Computer Journal
9. Software: Practice and Experience
10. Journal of Software Engineering and Applications

Dr. Rajesh Kumar

Date :