

Institute/Department	UNIVERSITY INSTITUTE OF COMPUTING (UIC)	Program	Master of Computer Applications - Cloud Computing and DevOps (MC307)
Master Subject Coordinator Name:	Charanjit Singh	Master Subject Coordinator E-Code:	E11181
Course Name	Devops Process Automation	Course Code	22CAT-741

Lecture	Tutorial	Practical	Self Study	Credit	Subject Type
3	0	0	0	3.0	T

Course Type	Course Category	Mode of Assessment	Mode of Delivery
N.A	Graded (GR)	Theory Examination (ET)	Theory (TH)

Mission of the Department	M1.To provide innovative learning centric facilities and quality-oriented teaching learning process for solving computational problems. M2.To provide a framework through Project Based Learning to support society and industry in promoting a multidisciplinary activity. M3.To develop crystal clear evaluation system and experiential learning mechanism aligned with futuristic technologies and industry. M4. To provide doorway for promoting research, innovation and entrepreneurship skills in collaboration with industry and academia. M5.To undertake societal activities for upliftment of rural/deprived sections of the society
Vision of the Department	To be a Centre of Excellence for nurturing computer professionals with strong application expertise through experiential learning and research for matching the requirements of industry and society instilling in them the spirit of innovation and entrepreneurship.

Program Educational Objectives(PEOs)	
PEO1	Establish well-fortified foundational knowledge, learn, adapt and successfully bring to bear cloud computing approaches on changing societal and technological challenges.
PEO2	Undertake successful implementation of ethical solutions as an individual or a member or a leader of a team by investigating, analyzing, formulating and solving complex Cloud Architectural and DevOps problems in multidisciplinary approaches using modern tools.
PEO3	Enhance professionalism and ethical attitude in the profession while communicating with local, national and foreign peers, bound within regulations and leading to lifelong learning.
PEO4	Promote awareness for uplifting health, safety, legal, environmental, ethical and cultural diversity issues for serving the society.

Program Specific OutComes(PSOs)	
PSO1	Recognizing cloud computing algorithm construction, reviewing DevOps tools in the areas of Heuristics and Network Devices, and exhibiting the ability to function within multidisciplinary teams with intellectual ability in modern tool usage.
PSO2	Appeal valid conclusions, employ research-based knowledge and research methods consistent with economic reforms and use highly computational designs to supply ethical and responsible engineering services to society.

Program OutComes(POs)	
PO1	Apply mathematics and computing fundamental and domain concepts to find out the solution of defined problems and requirements. (Computational Knowledge)
PO2	Use fundamental principle of Mathematics and Computing to identify, formulate research literature for solving complex problems, reaching appropriate solutions. (Problem Analysis)
PO3	Understand to design, analyze and develop solutions and evaluate system components or processes to meet specific need for local, regional and global public health, societal, cultural, and environmental systems. (Design/Development of Solutions)
PO4	Use expertise research-based knowledge and methods including skills for analysis and development of information to reach valid conclusions. (Conduct Investigations of Complex Computing Problems)
PO5	Adapt, apply appropriate modern computing tools and techniques to solve computing activities keeping in view the limitations. (Modern Tool Usage)

PO6	Exhibiting ethics for regulations, responsibilities and norms in professional computing practices. (Professional Ethics)
PO7	Enlighten knowledge to enhance understanding and building research, strategies in independent learning for continual development as computer applications professional. (Life-long Learning)
PO8	Establishing strategies in developing and implementing ideas in multi- disciplinary environments using computing and management skills as a member or leader in a team. (Project Management and Finance)
PO9	Contribute to progressive community and society in comprehending computing activities by writing effective reports, designing documentation, making effective presentation, and understand instructions. (Communication Efficacy)
PO10	Apply mathematics and computing knowledge to access and solve issues relating to health, safety, societal, environmental, legal, and cultural issues within local, regional and global context. (Societal and Environmental Concern)
PO11	Gain confidence for self and continuous learning to improve knowledge and competence as a member or leader of a team. (Individual and Teamwork)
PO12	Learn to innovate, design and develop solutions for solving real life business problems and addressing business development issues with a passion for quality competency and holistic approach. (Innovation and Entrepreneurship)

Text Books					
Sr No	Title of the Book	Author Name	Volume/Edition	Publish Hours	Years
1	The DevOps Adoption Playbook: A Guide to Adopting DevOps in a Multi-Speed IT Enterprise	Sanjeev Sharma	1	Wiley IBM Press	2017

Reference Books					
Sr No	Title of the Book	Author Name	Volume/Edition	Publish Hours	Years
1	DevOps Automation Cookbook	Michael Duffy	1	Packt Publishing Ltd	2017

Course OutCome	
SrNo	OutCome
CO1	Understand DevOps and Software development methods.
CO2	Articulate DevOps with the use of Open Source Tools for problem-solving in the IT industry
CO3	Construct software integration through automation tools.
CO4	Dramatize DevOps and Software development tools to implement software applications
CO5	Troubleshoot system configuration faults using DevOps tools

Lecture Plan Preview-Theory						
Unit No	LectureNo	ChapterName	Topic	Text/ Reference Books	Pedagogical Tool**	Mapped with CO Numer (s)
1	1	Introduction to DevOps	The Basics of testing in DevOps	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT	CO1
1	2	Introduction to DevOps	Integration of testing in DevOps	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT	CO1
1	3	Introduction to DevOps	Importance of Continuous testing in DevOps	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT	CO1
1	4	Introduction to DevOps	Tips for Developing DevOps testing strategy	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT	CO1
1	5	Introduction to DevOps	DevOps Testing Tools.	T-The DevOps Adoption Playbook:	PPT	CO3
1	6	Version Control in DevOps	Distributed Version control system	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	Simulation,V ideo Lecture	CO2
1	7	Version Control in DevOps	Install Git on Ubuntu	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Simulati on	CO3

1	8	Version Control in DevOps	Install Git on Windows	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Simulation,Video Lecture	CO3
1	9	Version Control in DevOps	Building the Code	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	Simulation,V ideo Lecture	CO3
1	10	Version Control in DevOps	Need for Building the Code	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	Simulation,V ideo Lecture	CO3
2	11	Tools Used for Build Process	Jenkins. Managing the Build Process:	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Simulation	CO3
2	12	Tools Used for Build Process	Jenkins Build Server	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT	CO3
2	13	Tools Used for Build Process	Managing Build Dependencies	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Simulation	CO3
2	14	Tools Used for Build Process	The Final Artefact	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT	CO4
2	15	Tools Used for Build Process	Managing the build Process using Jenkins	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
2	16	Tools Used for Build Process	how to trigger a build from external links	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO3
2	17	Tools Used for Build Process	how to Chain Jobs in Jenkins	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
2	18	Tools Used for Build Process	how to use Command line interface for Jenkins.	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
2	19	Continuous Integration and Its Tools	Introduction to Continuous Integration	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO2
2	20	Continuous Integration and Its Tools	Continuous Delivery Pipeline	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO2
2	21	Continuous Integration and Its Tools	Setting Up Delivery Pipelines in Jenkins	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Simulation	CO4
2	22	Continuous Integration and Its Tools	Security aspects in the build process	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
2	23	Continuous Integration and Its Tools	Continuous Integrated Tools: Team city	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
2	24	Continuous Integration and Its Tools	Installing team City	T-The DevOps Adoption Playbook:	PPT,Video Lecture	CO3
2	25	Continuous Integration and Its Tools	Configuring TeamCity	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
3	26	Dockers in DevOps	Dockers in DevOps	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
3	27	Dockers in DevOps	Virtualization	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO5
3	28	Dockers in DevOps	Virtual Machine Manager (VMM), Types of Virtualization	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO5
3	29	Dockers in DevOps	Docker containers and their purpose	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO5
3	30	Dockers in DevOps	Docker Architecture	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
3	31	Dockers in DevOps	Advantages of Docker's Containers	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
3	32	Dockers in DevOps	Underlying Technology	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO3
3	33	Dockers in DevOps	Using Docker Commands	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO3

3	34	Dockers in DevOps	working with Docker	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
3	35	Dockers in DevOps	working with a Docker Container	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO3
3	36	Dockers in DevOps	working with a Docker Container	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO3
3	37	Dockers in DevOps	, Pushing Docker Images to Docker Repository.	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO2
3	38	Installing Docker for Windows	Working with Docker Toolbox, Kitematic.	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	Video Lecture	CO5
3	39	PUPPET and CHEF for DevOps	Introduction to PUPPET	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
3	40	PUPPET and CHEF for DevOps	Puppet Architecture	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO5
3	41	PUPPET and CHEF for DevOps	Puppet Installation	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO3
3	42	PUPPET and CHEF for DevOps	Real Time Manifest	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO4
3	43	PUPPET and CHEF for DevOps	CHEF. Saltstack for DevOps: Introduction to Saltstack: Working of Saltstack	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO5
3	44	PUPPET and CHEF for DevOps	Salt-Key. Installing Saltstack: Installation of Salt on Linux	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO5
3	45	PUPPET and CHEF for DevOps	, Installation of Salt on Windows	,T-The DevOps Adoption Playbook: ,R-DevOps Automation Cookbook	PPT,Video Lecture	CO5

Assessment Model			
Sr No	Assessment Name	Exam Name	Max Marks
1	20EP02	External Theory	60
2	20EP02	Attendance Marks	2
3	20EP02	Mid-Semester Test-1	20
4	20EP02	Quiz	6
5	20EP02	Short Term Paper / Research Paper	12
6	20EP02	Mid-Semester Test-2	20

CO vs PO/PSO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	3	NA	NA	1	1	NA	NA	NA	NA	NA	NA	NA	2	1
CO2	3	NA	3	2	2	NA	NA	NA	NA	NA	NA	NA	1	2
CO3	3	NA	2	2	2	NA	NA	NA	NA	NA	NA	NA	2	1
CO4	2	3	NA	1	2	NA	NA	NA	NA	NA	NA	NA	2	2
CO5	2	1	3	2	3	NA	NA	NA	NA	NA	NA	NA	1	2
Target	2.6	2	2.67	1.6	2	NA	NA	NA	NA	NA	NA	NA	1.6	1.6

