Vidyalankar Institute of Technology
Accredited A+ by NAAC

Version 0120-7

Consolidated Academic Administration Plan for the Course

Cloud Computing Laboratory (core as per NBA) Sem. VI – Program Computer Engineering 2023-2024 –Even Semester Faculty – Dr. Dilip Motwani (Cluster Mentor) & Prof. Divya Surve

The academic resources available in VIT –

VMIS (ERP)	V-Refer and V-Live	VIT Library	VAC & MOOC Courses
Institute & Department Vision and Mission	Former IA question papers and solutions (prepared by faculty)	Former IA question papers solutions - hardcopy	Value Added Courses (VAC) are conducted throughout the semester & in the semester break - Enroll for the VACs
Program Educational Objectives (PEO)	MU end semester examination question papers and solutions (prepared by faculty)	MU end semester exam question paper & solutions - by faculty, hardcopy	
Program Specific Outcome (PSO)	Class notes and Digital Content for the subject (scanned / typed by faculty)	All text books, reference books, e -books mentioned in the syllabus & AAP	Online courses from NPTEL, Coursera etc. are pursued throughout the semester - Register for the course & get certified
Program Outcome (PO)	Comprehensive question bank, EQ, GQ, PPT, Class Test papers	Technical journals and magazines for reference	
Departmental Knowledge Map	Academic Administration Plan & Beyond Syllabus Activity report	VIT library is member of IIT Bombay Library	Watch former lectures captured in LMS at VIT

1.a Course Objectives (Write in detail – as per NBA guidelines)

Cognitive	What do you want students to know?	Students will be able to know the use of public cloud platforms to use them for various purposes like IaaS, PaaS and SaaS.
Affective	What do you want students to think / care about?	Students will be able to perform various experiments on cloud to have minimal expenditure on deployment and maintenance of servers
Behavioral	What do you want students to be able to do?	Students should be able to use the public cloud services to implement real life solutions to various problems

Advice to Students:

Attend every class!!! Missing even one class can have a substantial effect on your ability to understand the course. Be prepared to think and concentrate, in the class and outside. I will try to make the class very interactive. Participate in the class discussions. Ask questions when you don't understand something. Keep up with the class readings. Start assignments and homework early. Meet me in office hour to discuss ideas, solutions or to check if what you understand is correct. The v-Refer Link for this course :
DN - Files - ownCloud (vidyalankarlive.com)

Collaboration Policy:

We encourage discussion between students regarding the course material. However, no discussion of any sort is allowed with anyone on the assignment and homework for the class. If you find solution to some problems in a book or on the internet, you may use their idea for the solution; provided you acknowledge the source (name and page in the book or the website, if the idea is found on the internet). Even though you are allowed to use ideas from another source, you must write the solution in your own words. If you are unsure whether or not certain kinds of collaboration is possible please ask the teacher.

1.b Course Outcome (CO) Statements and Module-Wise Mapping (follow NBA guideline)

CO No.	Statements	Related Module/s
CO1	Implement different types of virtualization techniques.	2,3
CO2	Analyze various cloud computing service models and implement them to solve the given problems.	1,4,5,6,7,9
CO3	Design and develop real world web applications and deploy them on commercial cloud(s).	12
CO4	Explain major security issues in the cloud and mechanisms to address them.	8
CO5	Explore various commercially available cloud services and recommend the appropriate one for the given application	12
CO6	Implement the concept of containerization	10,11

1.c Mapping of COs with POs (mark S: Strong, M: Moderate, W: Weak, Dash '–': not mapped)

(List of POs is available in V-refer)

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12
CO 1	M	W	S									
CO 2	S	S	S									
CO 3	M		S									
CO 4	M	W	S									
CO 5	M	M	S									
CO 6		M	S									

1.d Mapping of COs with PSOs (mark S: Strong, M: Moderate, W: Weak, Dash '–':not mapped)

	PSO 1	PSO 2	PSO 3
CO 1	S	M	
CO 2	S	M	
CO 3	S	M	
CO 4	S	M	
CO 5	S	M	
CO 6	S	M	

1.e Teaching and Examination Scheme (As specified by the University) for the Course

Categories	Mathematics	Basic Science & General Engg.	Humanities & Soft Skill	Core Engg./ Technology - Design & Analysis	Multidisciplinary
Tick suitable category				√	√

Subject Code	Subject Name	Teaching Scheme			Credits Assigned			
		Theory	Practical	Tutorial	Theory	TW/Practical	Tutorial	Total
CSL605	Cloud Computing	2	4	-	-	2	-	2

Subject Code	Subject Name	Examination Scheme							
		Theory Marks IA Test			End Sem. Exam Marks	ISA	Practical	Oral	Total
		IA 1	IA 2	Average of IA1 and IA2					
CSL605	Cloud Computing	-	-	-	-	50	-	25	75

1.f Faculty-Wise Distribution of all Lecture-Practical-Tutorial Hours for the Course - NA

Divisions	Lecture (Hrs.)	Practical (Hrs.)				Tutorial (Hrs.)			
		Batch 1	Batch 2	Batch 3	Batch 4	Batch 1	Batch 2	Batch 3	Batch 4
A	2	2	2	2	2				
B	2	2	2	2	2				

1.g Office Hours (Faculty will be available in office in this duration for solving students' query)

Division	Day	Time (at least 1 Hr. / Division)	Venue (Office Room No.)
A	Monday (DN)	9:00 am to 10:00 am	M209
B	Monday (DN)	9:00 am to 10:00 am	M209

2.a Syllabus : Module Wise Teaching Hours and % Weightage in University Question Paper

Module No.	Module Title and Brief Details	Teaching Hrs. for each module	% Weightage in University Question Papers
1	**Title:** Introduction and overview of cloud computing. **Objective:** To understand the origin of cloud computing, cloud cube model, NIST model, characteristics of cloud, different deployment models, service models, advantages and disadvantages.	2	NA
2	**Title:** To study and implement Hosted Virtualization using VirtualBox& KVM. **Objective:** To know the concept of Virtualization along with their types, structures and mechanisms. This experiment should have demonstration of creating and running Virtual machines inside hosted hypervisors like VirtualBox and KVM with their comparison based on various virtualization parameters.	2	NA
3	**Title:** To study and Implement Bare-metal Virtualization using Xen, HyperV or VMware Esxi. **Objective:** To understand the functionality of Bare-metal hypervisors and their relevance in cloud computing platforms. This experiment should have demonstration of install, configure and manage Bare Metal hypervisor along with instructions to create and run virtual machines inside it. It should also emphasize on accessing VMs in different environments along with additional services provided by them like Load balancing, Auto-Scaling, Security etc.	4	NA

4	**Title:** To study and Implement Infrastructure as a Service using AWS/Microsoft Azure. **Objective:** To demonstrate the steps to create and run virtual machines inside Public cloud platform. This experiment should emphasize on creating and running Linux/Windows Virtual machine inside Amazon EC2 or Microsoft Azure Compute and accessing them using RDP or VNC tools.	4	NA
5	**Title:** To study and Implement Platform as a Service using AWS Elastic Beanstalk/ Microsoft Azure App Service. **Objective:** To demonstrate the steps to deploy Web applications or Web services written in different languages on AWS Elastic Beanstalk/ Microsoft Azure App Service.	4	NA
6	**Title:** To study and Implement Storage as a Service using Own Cloud/ AWS S3, Glaciers/ Azure Storage. **Objective:** To understand the concept of Cloud storage and to demonstrate the different types of storages like object storage, block level storages etc. supported by Cloud Platforms like Own Cloud/ AWS S3, Glaciers/ Azure Storage.	4	NA
7	**Title:** To study and Implement Database as a Service on SQL/NOSQL databases like AWS RDS, AZURE SQL/ MongoDB Lab/ Firebase. **Objective:** To know the concept of Database as a Service running on cloud and to demonstrate the CRUD operations on different SQL and NOSQL databases running on cloud like AWS RDS, AZURE SQL/ Mongo Lab/ Firebase.	2	NA
8	**Title:** To study and Implement Security as a Service on AWS/Azure **Objective:** To understand the Security practices available in public cloud platforms and to demonstrate various Threat detection, Data protection and Infrastructure protection services in AWS and Azure.	3	NA
9	**Title:** To study and implement Identity and Access Management (IAM) practices on AWS/Azure cloud. **Objective:** To understand the working of Identity and Access Management IAM in cloud computing and to demonstrate the case study based on Identity and Access Management (IAM) on AWS/Azure cloud platform.	2	NA
10	**Title:** To study and Implement Containerization using Docker **Objective:** To know the basic differences between Virtual machine and Container. It involves demonstration of creating, finding, building, installing, and running Linux/Windows application containers inside local machine or cloud platform.	4	NA
11	**Title:** To study and implement container orchestration using Kubernetes **Objective:** To understand the steps to deploy Kubernetes Cluster on local systems, deploy applications on Kubernetes, creating a Service in Kubernetes, develop Kubernetes configuration files in YAML and creating a deployment in Kubernetes using YAML,	4	NA
12	**Mini-project:** Design a Web Application hosted on public cloud platform [It should cover the concept of IaaS, PaaS, DBaaS, Storage as a Service, Security as a Service etc.]	4	NA
* Insert rows for more modules in the Course **Total**		39	

2.b Prerequisite Courses

No.	Semester	Name of the Course	Topic/s
1	V	Computer Network	IP Addressing , Sub netting

2.c Relevance to Future Courses

No.	Semester	Name of the Course
1	VII	Final Year Project
2	VII	High Performance Computing

2.d Identify real life scenarios / examples which use the knowledge of the subject

Real Life Scenario	Concept Used
E-learning Platforms eg. Microsoft Teams, Google Classroom	Cloud Services
Online Multimedia Streaming Platforms eg. HotStar, Amazon Prime	Cloud Services

3. Past Results – Division-Wise (NA – Subject Newly introduced in the syllabus)

Details	Target – May 2024	May 2023	May 2022	May 2021
Course Passing % – Average of 3 Divisions	100 %	100 %	100 %	100 %
Marks Obtained by Course Topper (mark/100)	100%	100%	100%	100%

	Division A		Division B		Division C	
Year	Initials of Teacher	% Result	Initials of Teacher	% Result	Initials of Teacher	% Result
May 2023	DN	100	DN	100		
May 2022	DN / UMK	100	DN / UMK	100		
May 2021	DN / UMK	100	DN / UMK	100		

4 All the Learning Resources – Books and E-Resources

4.a List of Text Books (T – Symbol for Text Books) to be Referred by Students

Sr. No	Text Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Amazon Web Services for Dummies	Bernard Golden	John Wiley & Sons, Inc	2013	4,5,6,7,8,9
2	Fundamentals of Azure, Microsoft Azure Essentials	Michael Collier, Robin Shahan	Microsoft Press	2015	4,5,6,7,8,9
3	Mastering Cloud Computing	RajkumarBuyya, Christian Vecchiola, S ThamaraiSelvi	Tata McGraw-Hill Education	2016	All
4	Cloud Computing Bible	Barrie Sosinsky	Wiley publishing	2011	All
5	AWS for Admins for Developers	John Paul Mueller	John Wiley & Sons, Inc.		4,5,6,7,8,9
6	Docker Cookbook	Ken Cochrane, Jeeva S. Chelladhurai, NeependraKhare	Packt publication	Second, 2018	10
7	Getting Started with Kubernetes	Jonathan Baier	Packt Publication	Second, 2017	11

4.b List of Reference Books (R – Symbol for Reference Books) to be Referred by Students

Sr. No	Reference Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Enterprise Cloud Computing	Gautam Shroff	Cambridge	2010	All
2	Cloud Security	Ronald Krutz and Russell Dean Vines,	Wiley – India	2010	8
3	Getting Started with OwnCloud	Aditya Patawar	Packt Publishing Ltd	2013	6

4.c List of E - Books (E – Symbol for E-Books) to be Referred by Students

Sr. No	E- Book Titles	Author/s	Publisher	Edition	Module Nos.
1	Cloud Services for Dummies	Judith Hurwitz, Marcia Kaufman, Dr. Fern Halper	John Wiley & Sons, Inc		
2	Virtual Machines: Versatile Platforms for Systems and Processes	James Smith, Ravi Nair	Morgan Kaufmann Publishers Inc.		2,3

4.d Reading latest / top rated research papers (at least 5 papers)

Name of Paper	Authors with Background	Published in		Problem Statement
		Date	Journal	
Transformer-based network intrusion detection approach for cloud security. J Cloud Comp	Long, Z., Yan, H., Shen, G. et al. A	02 January 2024	Journal of Cloud Computing	Strong defense mechanisms are required by the dispersed design of cloud computing to protect network-accessible resources from a wide range of dynamic threats. In this setting, a Network Intrusion Detection System (NIDS) is essential, and its effectiveness in cloud environments depends on how well it can adjust to changing attack vectors while reducing false positives. In this work, we introduce a brand-new NIDS algorithm that is specifically designed for cloud environments and is based on the Transformer model.
Reinforcement learning based task scheduling for environmentally sustainable federated cloud computing	Zhibao Wang, Shuaijun Chen, Lu Bai, Juntao Gao, Jinhua Tao, Raymond R. Bond & Maurice D. Mulvenna	07 December 2023	Journal of Cloud Computing	Data centers use a lot of energy, which makes them a major source of both global energy consumption and carbon emissions. For this reason, cutting data center energy use and carbon emissions is essential to sustainable development. The main reason why traditional cloud computing has reached a standstill is its excessive energy usage. By taking use of the geographical disparities between

				several cloud data centers inside a federated cloud, the newly developed federated cloud strategy can lower the energy consumption and carbon emissions of cloud data centers. The framework we present in this research, Eco-friendly Reinforcement Learning in Federated Cloud (ERLFC), leverages reinforcement learning to schedule tasks inside a federated cloud setting. ERLFC seeks to efficiently utilize the differences in energy and carbon while taking into account the condition of each data center.
A Systematic Literature Review on Cloud Computing Security: Threats and Mitigation Strategies	B. Alouffi, M. Hasnain, A. Alharbi, W. Alosaimi, H. Alyami and M. Ayaz	2021	IEEE Access	This SLR's findings identified seven significant security risks to cloud computing systems. The findings indicated that among the most talked-about subjects in the selected literature were data manipulation and leaks. Additional security threats were linked to data storage and data infiltration in cloud computing environments. The outcomes of this SLR also showed that cloud users and CSPs continue to have difficulties with consumer data outsourcing. The blockchain was mentioned in our survey paper as a collaborating technology to allay security worries. The results of the SLR provide some recommendations for more research to be conducted in order to improve data availability, confidentiality, and integrity.
Sentimental Analysis on voice using AWS Comprehend	G. Satyanarayana Dr. Bhuvana J Balamurugan M	22nd-24th Jan, 2020	International Conference on Computer Communication and Informatics (ICCCI -2020)	To identify the emotions of the conversation and give the output whether the conversation is Positive, Negative, Neutral, or Mixed. To perform this author going to use some services from Aws like s3 which is used for the data store, Transcribe which is used for converting the audio to text, Aws Glue is used to generate the metadata from the comprehend file, Aws Comprehend is used to generate the sentiment file from the audio, Lambda is used to trigger from the data store s3, Aws Athena is used to convert text into structured data and finally, there is quick sight where he can visualize the data from the given file

Cloud Computing and its Impact on Online Education	Duha Khalid Abdul-Rahman Al-Malah	2020	IOP Conf. Series: Materials Science and Engineering	This study explored how the educational process concept which has several cloud inputs and outputs—could be used to use the electronic cloud for distant learning in order to alleviate the education crisis across all of its institutions. This study also looked at all of the requirements for that setting and whether or not colleges and other educational institutions might use them.

4.e **Based on research paper an identify the current Problem statement**

Problem Statement	Used in					
	Quiz	Assignment	Lab	Mini Project	Poster Presentation	Test
Understanding emotion of a conversation using cloud service under various context		√	√			

4.f **Identify Companies / Industries which use the knowledge of the subject and thus may provide Internships and final Placements**

Name of the Company	To be / Contacted for		
	Student Internship	Student Final Placement	Faculty Internship
Cloud Counsellage	√		

4.g **Identify suitable relevant TOP Guest Speakers from Industry (CS50 Lecture by Mark Zuckerberg - 7 December 2005 - YouTube)**

Name of the Identified Guest Speaker	Designation	Name of the Company
Jigar Gajjar	Cloud Engineer	AWS

4.h **Identify relevant Technical competitions to participate [Competitions -Paper Presentations, Projects, Hackathons, IVs etc..]**

Name of the Relevant Technical Competition Identified to participate	Organized by	Date of the Event
Tech-A-Thon (Hardware Hackathon) Techa-A-Thon (Hardware Hackathon) by Thadomal Shahani Engineering College (TSEC), Mumbai! // Unstop (formerly Dare2Compete)	TSEC	3rd Feb,2024
Technodyssey Technodyssey by Veermata Jijabai Technological Institute (VJTI), Mumbai! // Unstop (formerly Dare2Compete)	VJTI	12th January 2024
S.P.I.T Hackathon 2024 S.P.I.T Hackathon 2024 by Bharatiya Vidya Bhavans Sardar Patel Institue of Technology , Mumbai! // Unstop (formerly Dare2Compete)	SPIT	10th and 11th February, 2024

4.i **Identify faculty in TOP schools / Universities who are teaching same / similar subject and develop rapport e.g. Exchange Lecture Material (Assignments / Tests / Project etc..), Joint Paper Publication**

University	Name of the Course	Name of Faculty	Type of Collaboration		
			Exchange of Lecture Material	Joint Publication/ Research	Other
Standford	Cloud Computing	Christos Kozyrakis	√		

4.j **Web Links and Names of Magazines, Journals, E-journals – [VIT is member of IIT Bombay Library]**

Refer online journals subscribed in VIT library. You can also access IIT Bombay online library for journals from IITB campus.

Sr. No.	Web-Links and Names of Journals and E-Journals Recommended to Students for this Course	Web-Links and Names of Magazines Recommended to Students for this Course	Module Nos.
1	IEEE Transactions on Cloud Computing https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=6245519	Connecting Fog and Cloud Computing https://ieeexplore.ieee.org/document/7912254/	All
2	IEEE/ACM Transactions on Networking https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=90	Threat as a Service?: Virtualization's Impact on Cloud Security https://ieeexplore.ieee.org/document/6109217/	All
3	IEEE Access https://ieeexplore.ieee.org/xpl/RecentIssue.jsp?punumber=6287639	Intel Virtualization Technology https://ieeexplore.ieee.org/document/1430631/	All

4.k **Module Best Available in - Tick ONE best resource [from *4.a* to *4.d* in this AAP] & give details**

Module No.	Category (Please Tick Mark) - √						Available In VIT Library?		Details of the Resource (i.e. Name, Chapter no.etc.)
	Book			Maga-zine	Journals				
	Text	Reference	E-Book		Regular	E-Journal	Y	N	
1	√								T1, 1
2	√								T3, 3
3	√								T3, 3
4	√								T1, 1 and T2, 2
5	√								T1,2 and T2,
6	√								T1,3 and T2, 6
7	√								T1, 3 and T2, 6

8	√								T1,4 and T2, 3
9	√								T1,4 and T2, 7
10	√								T6, 1
11	√								T7, 1

4.l **Referred to any top-rated university in that subject for content**

University	Name of the Course	Name of Faculty	Date of Delivery of the Course	Remarks
IIT Kharagpur	Cloud Computing	SomyaKanti Ghosh	-	Recoded Sessions referred

4.m **Faculty received any certification related to their subject. List of Certifications Identified / Done**

Course	Certifying Agency	Certification		Remarks
		Done on	Proposed to be on	
Cloud Computing	NPTEL	April, 2021	-	Divya Surve
AWS Fundamental Specialization	Coursera and AWS	June 2020	-	Divya Surve

4.n **Completed subject wise/cluster wise training with cluster mentor. List of relevant Refresher Course Identified / Done**

Course	Certifying Agency (As suggested by DAB/Cluster Mentor/Industry/ University other than MU)	Certification		Remarks
		Done on	Proposed to be on	
Pedagogy				
PBL				
Sub. Content Training				

4.o Best Practices Identified and adopted

No.	Item	Best Practices Identified		
		Univ. 1 – Standford	Univ. 2 – IIT Bombay	Univ. 3
1	Microsite	Yes http://web.stanford.edu/class/cs349d/	Yes. https://www.cse.iitb.ac.in/~cs695/	
2	Video Lectures		Yes	
3	Assignments		Yes	
4	Mini Project			
5	Assessment Metric	Yes		
6	Quizzes			
7	Labs/ Practical (PBL)		Yes	
8	Tests			
9	Etc			
10	Peer Assessment etc.			

4.p Web Links for Online Notes/YouTube/VIT Digital Content/VIT Lecture Capture/NPTEL Videos

Students can view lectures by VIT professors, captured through LMS 'Lecture Capture' in VIT campus for previous years.

No.	Websites / Links	Module Nos.
1	NIST Model - https://www.nist.gov/system/files/documents/itl/cloud/NIST_SP-500-291_Version-2_2013_June18_FINAL.pdf	1
2	KVM Hypervisor - https://phoenixnap.com/kb/ubuntu-install-kvm/	2
3	XEN Server - https://docs.citrix.com/en-us/xenserver/7-1/install.html	3
4	IaaS, PaaS, STaaS, DbaaS, IAM and Security as a Service on AWS and Azure AWS - https://docs.aws.amazon.com/ Azure - https://docs.microsoft.com/en-us/azure	4, 5, 6, 7, 8, 9
5	Docker - https://docs.docker.com/get-started/	10
6	Kubernetes - https://kubernetes.io/docs/home/	11

4.q Recommended MOOC Courses like Coursera / NPTEL / MIT-OCW / edX/VAC etc.

Sr. No.	MOOC Course Link	Course conducted by – Person / University / Institute / Industry	Course Duration	Certificate (Y / N)
1	AWS for beginners Free AWS Course With Certificate For Beginners - Great Learning (mygreatlearning.com)	Mr. Vishal Padghan, Research Analyst Great Learning	3 hrs	Y
2	Microsoft Azure Essentials Free Microsoft Azure Course With Certificate For Beginners (mygreatlearning.com)	Mr. Atul Sharma, Senior Azure App LeadMicrosoft	3 hrs	Y

3	Cloud Foundations Free Cloud Foundations Online Coursewith Certificate - Great Learning (mygreatlearning.com)	Mr. Nirmallya Mukherjee Former Chief Architec Dell	2.5 hrs	Y

5 Consolidated Course Lesson Plan

	From (date/month/year)	From (date/month/year)	Total Number of Weeks
Semester Duration	11th Jan 2024	29th April, 2024	

Week	Lecture no.	Module No.	Lecture Topics / IA 1 and IA 2 / BSA planned to be covered	Actual date of Completion (Hand written)	COs Mapped	Recommended Prior Viewing / Reading	
						Lecture No. (on LMS)	Chapter No./ Books/ Web Site
1							

6 Rubric for Grading and Marking of In Semester Assessment (inform students at the beginning of semester)

MOOC Course	Assignments	Experiements	PBL and Newly Added Exp	Mini project, Presentation and Report	Cross Word	Quiz	nd Map	Research Paper Review	Poster Presentation	Total
5	5	5	5	5	5	5	5	5	5	50

7 Assignments / Tutorials Details

Assignment/ Tutorial No.	Title of the Assignments / Tutorials	CO Map	Assignment/ Tutorials given to Students on	Week of Submission
1	Explore and compare the similar type of services provided by AWS and Azure [Any ten services]	5	Week 3	4
2	Comparative study of different computing technologies [Parallel, Distributed, Cluster, Grid, Quantum)	5	Week 5	6
3	Take any paper suggested in AAP and write a review in your own words. Submit a document of the same highlighting – • Aim of the paper • Problem highlighted / addressed • Existing solutions to the problem • Novel solution discussed • Comparison of the solution with other techniques • Your review on the author's work Assignment should not exceed more than 2 pages	All	Week 7	8
4	Assignment on Containerization and Docker based on Guest Lecture Content	6	Week 9	10

Analysis of Assignment / Tutorial Questions and Related Resources

Assignment / Tutorial No.	Week No.	Type* (√)			Module No.	Based on #			Question Type (√)	
		R	PQ	OBT		Text Book	Reference Book	Other Learning Resource	MU EQ	Thought Provoking
1	4	√			1 – 4	T1, T2				√
2	8	√			5 - 8	T1, T2				√

* Tick (√) the Type of the Assignment: Regular (R); Pop Quiz (PQ) ; Open Book Test for TE/BE/ME (OBT)
# Write number for text book, reference book, other learning resource from this AAP – *from Points 4.a to 4.d*

8 Internal Assessment / Other Class Test / Open Book Test (OBT)/Take Home Test (THT) Details

Tests	Test Dates	Module No.	CO Map	IA Question Paper Pattern	Policy
1st IA Test	NA	NA	NA	NA	NA
2nd IA Test	NA	NA	NA		
Pop Quiz	Week 9	All	CO 1 to CO 6		
Open Book Test					
Take Home Test					

*** Failures of IA test (IA1+IA2) shall appear for IA test in the next semester. There is no provision for re-test in the same semester.**

9.a **Practical Activities – Regular Experiments**

Practical No.	Module No.	Title of the **Regular Experiments**	Topics to be highlighted	CO Map
1	1	Introduction and overview of cloud computing	NIST Model of CloudComputing	2
2	2	To study and implement Hosted Virtualization using VirtualBox & KVM	Virtualization and its types	1
3	3	To study and Implement Infrastructure as a Service using AWS/Microsoft Azure.	Creation and running ofVirtual Machine	2
4	4	To study and Implement Platform as a Service using AWS Elastic Beanstalk/ Microsoft Azure App Service.	Deploying Web Application on Public Cloud	2
5	5	To study and Implement Storage as a Service using Own Cloud/ AWS S3, Glaciers/ Azure Storage.	Understand different cloud storage	2
6	6	To study and Implement Database as a Service on SQL/NOSQL databases like AWS RDS, AZURE SQL/ MongoDB Lab/ Firebase.	Implementing different SQL and No-SQL operations on public cloud	2
7	7	To study and Implement Security as a Service on AWS/Azure	Understanding various threat, data and infrastructure protection services on public cloud	4
8	8	To study and implement Identity and Access Management (IAM) practices on AWS/Azure cloud.	Use of IAM based on some case study	2
9	9	To study and Implement containerization using Docker	Know difference between virtual machine and container	6
10	10	To study and implement container orchestration using Kubernetes	Steps to deploy Kubernetes	6

9.b Practical Activities – Newly Added Experiments – All Experiments are new

Practical No.	Module No.	Title of the **Newly Added Experiments**	Concepts to be highlighted	CO Map
1	11	Design a Web Application hosted on public cloud platform	Project based on all experiments and possible cloud services	3,5

9.c Practical Activities – PBL Experiments -

Practical No.	Module No.	Title of the **PBL Experiments**	Concepts to be highlighted	CO Map
1	4,5,6,7	Your organization is a startup of 10 employees. The organization head wishes to set up its own Work mail . You are asked to use necessary cloud services and set up a secure work mails.	Cloud Services	2
2	4,5,6,7	You have been asked to submit a recorded presentation of your project work wherein the entire recording is available with transcript. In addition, a meaningful translation of the transcript in other popularly spoken languages are asked to be made available. You are asked to use the various services	Cloud Services	2

No.	Type of the Activity	Activities	Details – no of attendees, guest, feedback, mark sheet, report
1	**Experiential learning/Interaction with Outside World**	1- Guest Lectures by Industry Expert	Guest Lecture by Jigar Gajjar
		2- Workshops	
		3- Mini Project	Yes, In groups of maximum 4 students.
		4- Industrial Visit	
		5- Any other activity	
2	**Collaborative & Group Activity**	1- Poster Presentation	Yes, Based on various real life applications and their use of cloud services
		2- Minute Papers	
		3- Students Seminars	Yes, based on mini project developed
		4- Students Debates	
		5- Panel Discussion / Mock GD	
		6- Mock Interview	
		7- Any other activity	Mind Map of Topics assigned
3	**Co-Curricular Activity**	1- Informative videos (NPTEL/Youtube /TEDx/ MIT OW/edX)	Yes, informative videos related to performance of various experiments
		2- Lecture Capture Usage	
		3- Any other activity	
4	**Tests & Assessments**	1- Class Tests/ Weekly Tests	
		2- Pop Quiz	Yes, based on entire subject
		3- Mobile App Based Quiz	
		4- Open Book	
		5- Take Home Test	
		6- Any other activity	Yes, Intuitive crossword.

11.1 One-on-One Academic Mentoring Meetings done

No.	Name of Mentee	Date of One-On-One Meeting		
		Beginning of Sem.	After Mid Term Results	Before End Sem.
1.	Asaavi Tupsounder			
2.	Ishan Wagh			
3.	Nikhil Adhare			
4.	Sanket Gaikwad			
5.	Harsh Naik			
6.	Akshata Kadam			
7.	Amruta Gulekar			
8.	Ved Dahale			
9.	Pankaj Badgujar			
10.	Priyanshu More			
11.	Pawan Kumar Nandagiri			
12.	Ashuraj Herode			
13.	Dipesh Rawal			
14.	Pratik Bhalkare			
15.	Sameer Shaikh			
16.	Sahil Chavhan			
17.	Siddhesh Padmere			
18.	Ishika Bhagat			
19.	Mark John			
20.	Chandan Patil			
21.	Sahil Bhoir			
22.	Gaurav Desai			
23.	Prathamesh Mohite			

11.2 Identify Financial Concerns and refer appropriately

No.	Name of Mentee			
		Individual Goals Identified	Any Financial Concern which needs to be referred to	Any Emotional Concern to be referred to

*** Do not delete any activity. Give details for planned events. Write 'NA' for activity Not Planned.**

Consolidated Academic Administration Plan Prepared by (mention all theory teaching faculty names with signature)

Please write below your name and sign with date of the external cluster mentor meeting

Faculty 1	Faculty 2	Faculty 3

External Industry Mentor	External Academic Mentor	VIT Cluster Mentor	Program HOD