

**REVISED SYLLABUS OF B.Sc. (Cloud Computing)
UNDER CBCS FRAMEWORK WITH EFFECT FROM 2020-2021**

PROGRAMME: THREE-YEAR B.Sc (Maths – Computer Science – Cloud Computing)

Market oriented course in Computer Science

Cloud Computing

*(With Learning Outcomes, Unit-wise Syllabus, References, Co-curricular
Activities)*

For 1, 2, 3 & 4 Semesters)

(To be Implemented from 2020-21 Academic Year)

Cloud Computing

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
FIRST YEAR							
SEMESTER I	I	Basics of Cloud Computing (Google, Amazon, IBM, Red hat, Microsoft, Sales force)	4	3	25	75	100
		Cloud Computing Lab	2	2	0	50	50
SEMESTER II	II	Cloud Computing Services	4	3	25	75	100
		HTML / CSS and Java Script Lab	2	2	0	50	50
SECOND YEAR							
SEMESTER III	III	Application development on Cloud Computing	4	3	25	75	100
		Cloud based Application Development Lab	2	2	0	50	50
SEMESTER IV	IV	APEX & Visual force Programming	4	3	25	75	100
		APEX and Visual force Lab	2	2	0	50	50
	V	Business Intelligence	3	3	25	75	100
		Business Intelligence Lab	2	2	0	50	50

I YEAR I SEMESTER

Basics of Cloud Computing

Objective

The student will be knowing Cloud Computing basics and its services which include SaaS, PaaS, and IaaS. It also deals with different types of cloud such as Google, Amazon, IBM, Redhat, Microsoft and Salesforce.com

Outcome:

The student will

1. Get acquainted with the term Cloud computing.
2. Understand various types of free and commercial clouds.
3. Understands various types of cloud services like SaaS, PaaS and IaaS.
4. Know how the Cloud Computing is changing software industry.

UNIT-I

Computer Networks, basics of networking, Architectures of networking, topologies, types of Networks ,LAN,WAN,MAN, Network Components, Protocols, Communication aspects, basics of internet.

UNIT-II

Client-Server Computing, Cluster Computing, Grid Basics, Distributed Computing. Introduction to Cloud Computing, Introduction to Software as a Service (SaaS), Infrastructure as a Service (IaaS), and Platform as a Service (PaaS).

UNIT- III

Understanding Google Cloud, Google Apps, Google Compute Engine (GCE) ,Google App Engine. Amazon Services, Amazon Web Services, Amazon EC2. IBM Cloud Computing with its PaaS, IBM as SaaS and IBM as IaaS.

UNIT-IV

Red hat Cloud Computing with its PaaS. Microsoft Azure Cloud Computing Service- Windows azure platform Services, Windows Azure storage, Windows Azure fabrics.

UNIT-V

Salesforce Cloud Computing Services Pass, SaaS and IaaS.Heroku and Force.com as PaaS.

I YEAR I SEMESTER

References

1. Cloud Computing – An Introduction by Subu Sangameswar
2. Mastering Cloud Computing Paperback by Buyya (Author), Vecchiola (Author), Selvi (Author)
3. Cloud Computing for Complete Beginners: Building and Scaling High-Performance Web Servers on the Amazon Cloud by **Ikram Fatah**

RECOMMENDED CO-CURRICULAR ACTIVITIES:

(Co-curricular activities shall not promote copying from textbook or from others work and shall encourage self/independent and group learning)

A. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
2. Student seminars (on topics of the syllabus and related aspects (individual activity))
3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

B. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

1. The oral and written examinations (Scheduled and surprise tests),
2. Closed-book and open-book tests,
3. Problem-solving exercises,
4. Practical assignments and laboratory reports,

I YEAR I SEMESTER

5. Individual and group project reports.
6. Efficient delivery using seminar presentations,
7. Viva voce interviews.
8. Computerized adaptive testing, literature surveys and evaluations,
9. Peers and self-assessment, outputs form individual and collaborative work

Cloud Computing Lab

- 1) Creating Amazon Account to storeimages.
- 2) Creating Google Account to store files andprograms.
- 3) Creating IBM cloud account and access storagespace.
- 4) Creating Microsoft Azure Account and working on AzureCloud
- 5) Creating salesforce.com Account and working onTrailhead.com

I YEAR II SEMESTER

Cloud Computing Services

Objective

This subject would be exploring SaaS, PaaS, and IaaS in Cloud Computing and different types of clouds such as Sales Cloud, Service Cloud, Marketing Cloud, Analytics Cloud, etc.

Outcome

After completing this subject the student would be having knowledge on benefits of being part of a community dedicated to success, know where to get started, connect with others, get help, share ideas, and collaborate.

UNIT-I

Eco System of Salesforce.com, Leveraging our community resources and events, Stopping, Collaborating and listening, Industries and Clients.

UNIT-II

Various Clouds in Salesforce.com, Functionality, Advantages, Uses, Define Sales cloud, Service cloud, Marketing cloud, Analytics cloud, Platform and Apps, IOT and Commerce.

Unit –III

Brief overview on Marketing Cloud, Sales Cloud & Service Cloud in Salesforce.com

Unit –IV

Heroku and Force.com Clouds of Salesforce.com, Functional uses, Advantages, Examples

Unit-V

Brief overview on Wave Cloud, Thunder for IoT and Collaboration Cloud in Salesforce.com

References

1. Architecting the Cloud: Design Decisions for Cloud Computing Service Models(SaaS, PaaS, and IaaS) (Wiley CIO) by Michael J. Kavis(Author)
2. Cloud Computing: SaaS, PaaS, IaaS, Virtualization, Business Models, Mobile,Security and More by Kris Jamsa(Author)

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I YEAR II SEMESTER

shall encourage self/independent and group learning)

C. Measurable

1. Assignments (in writing and doing forms on the aspects of syllabus content and outside the syllabus content. Shall be individual and challenging)
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3. Quiz (on topics where the content can be compiled by smaller aspects and data (Individuals or groups as teams))
4. Study projects (by very small groups of students on selected local real-time problems pertaining to syllabus or related areas. The individual participation and contribution of students shall be ensured (team activity))

D. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

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8. Computerized adaptive testing, literature surveys and evaluations,
9. Peers and self-assessment, outputs form individual and collaborative work

I YEAR II SEMESTER

HTML, CSS and Java Script Lab

1. How to create an HTMLpage?
2. How to create, Body,Header?
3. What is the Simplest HTMLPage?
4. How can i add Comment in HTML?
5. What is HyperText Link?
6. Can I nest tables with inTables?
7. How to create CSS?
8. What are Pseudo classes and what they are usedfor?
9. What are the three main ways to apply CSS to a webPage?
10. What is grouping and why it is usedfor?
11. What is an ID Selector and how it isused?
12. What is class selector how it is differ from IDselector?
13. How to create Java scriptpages?

II YEAR III SEMESTER

Application Development on Cloud Computing

Objective

This subject will be exploring data structure with objects, fields, object relationships, security management, and communication templates.

Outcome

After completing this subject the student would be having knowledge on developing an application through GUI.

UNIT-I

Creating Apps, Tabs, S Objects, Fields, Records, Data. Working on Salesforce.com Classic Interface.

UNIT-II

Working on Various Relationships – Self Relationship, Lookup Relationship, Master detail Relationship, Many to many Relationship, Rollup Summary Relationship, Hierarchical Relationship

UNIT –III

Working with Custom components, Principles of designing Salesforce.com Projects. Filtering Data through Validations of Master Data, Designing page layouts, Designing Search layouts, and Record Types.

UNIT –IV

Security Management – Data Security, Data Migration- Import Wizard/ Data Loader. Schema Security/User Security, Organisation Security, Profiles, Roles, Queues, Public Groups, OWD Sharing Rules and Permission Sets.

UNIT-V

Communication Templates, Domain management, Working with Workflows & Approvals Process, Working with Process builder.

References :

Practical Salesforce.com Development Without Code by **Philip Weinmeister**.

Teach Yourself VISUALLY Salesforce.com by Justin Davis and Kristine Curington

II YEAR III SEMESTER

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E. Measurable

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F. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

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II YEAR III SEMESTER

Cloud based Application Development Lab

1. How to CreateModel?
2. How to CreateApps?
3. How to createTabs?
4. How to create Subjects?
5. How to createField?
6. How to createRecords?
7. How to create Validation rules?
8. How to create pagelayouts?
9. How to create RecordTypes?
10. How to createUsers?
11. How to createRoles?
12. How to create PublicGroups?
13. How to createQueues?
14. How to create SharingRules?
15. How to createWorkflows?
16. How to create Process BuilderAutomations?
17. How to use ApprovalProces?

II YEAR IV SEMESTER

APEX & Visual force Programming

Objective

After completing this subject the student would be having knowledge on data types and operators, understanding core concepts of apex and visual force, which includes collections and interfaces.

Outcome:

This subject will be exploring basics of programming through Salesforce.com with apex and visual force, which are programming language and framework respectively.

UNIT-I

Data Types and Operators- Primitive, Complex, Expressions and operators, Defining Functions, OOPS Concept- Abstraction, Encapsulation, Inheritance and Polymorphism

UNIT-II

Understanding Apex core concepts, Developing code in the cloud Apex Development process: Learning Apex, App Quick Start, Writing Apex class, Creating a custom object, Adding the Test class,

UNIT –III

Collections- List, Set, Map Working with DML Operations- Insert, Update, Upsert, Delete, Undelete and Merge, Execution flow in Apex- Exception Handling, Assertions and Annotations.

UNIT –IV

Interface in Apex- Batch Apex, Schedule Apex. Working with Triggers- Trigger Syntax, Trigger Context variables, Validations and Automations

UNIT-V

Introduction to Visual Force, Working on Visual Force components- Format Tags, Input Tags, Action Tags, Output Tags and Miscellaneous Tags. Working on Various Controllers- Custom controllers, Standard controllers, Extensions.

References

1. Apex Complete Developer Guide bySalesforce.com
2. Visual Force Developer guide bySalseforce.com

II YEAR IV SEMESTER

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G. Measurable

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H. General

1. Group Discussion
2. Try to solve MCQ's available online.
3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

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3. Problem-solving exercises,
4. Practical assignments and laboratory reports,
5. Individual and group project reports.
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**II YEAR IV SEMESTER
APEX and Visual Force Lab**

1. How to write a Business class and Test class and how to create anObject?
2. Create a Rectangle class Apexclass?
3. Create a Point class Apexclass?
4. Create a Bank Accountclass?
5. How to write Collectionclass?
6. How to write DML statements like insert, Update, delete, Undelete, merge andUpsert?
7. How to implement ExceptionHandling?
8. How to write Assertion andAnnotations?
9. How to write TriggerClass
10. How to write Batch Apexclass?
11. How to write Schedule Apex class?
12. How to create Visual forcepage?
13. How to work on Standard Controllers and CustomControllers
14. How to work on Standard listcontrollers?

II YEAR IV SEMESTER

Business Intelligence

Purpose

This subject will be exploring concepts on Wave Analytic basics, Wave Desktop Exploration, Wave App Basics, Sales Wave App, and Service Wave App.

Objective

After completing this subject the student will gain the knowledge of Business Intelligence using which they can convert raw data into pictorial format and analyse it to predict the future business.

Unit-I

Wave Analytic basics – Exploring Wave Analytics, Setup Wave analytics, Creating wave analytic App

Unit-II

Wave Desktop Exploration- Data Explorer, Analyse Data Explorer, Compare Table. Wave Mobile Exploration: Mobile Data Explorer, Mobile Exploration interface.

Unit- III

Wave App Basics: Creating Wave App basics, setting up Wave app Licenses and permissions

Unit- IV

Sales Wave app – Creating and Analysing Sales wave using Wizard, Sales wave on Mobiles

Unit-V

Service Wave App – Creating Service Wave using wizard, Service wave to Manage Service Load, Basic Wave Dashboard Customization.

References

Introduction to Salesforce Analytics - Building Reports and Dashboards:
Class Slides & Workbook for Sprd-101 by Steve Wasula (Author)

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I.Measurable

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J. General

1. Group Discussion
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3. Others

RECOMMENDED CONTINUOUS ASSESSMENT METHODS:

Some of the following suggested assessment methodologies could be adopted;

10. The oral and written examinations (Scheduled and surprise tests),
11. Closed-book and open-book tests,
12. Problem-solving exercises,
13. Practical assignments and laboratory reports,
14. Individual and group project reports.
15. Efficient delivery using seminar presentations,
16. Viva voce interviews.

17. Computerized adaptive testing, literature surveys and evaluations,
18. Peers and self-assessment, outputs form individual and collaborative work

III YEAR V SEMESTER

Business Intelligence Lab

1. How to createReport?
2. How to createDashboards?
3. How to create Tabularreports
4. How to create Matrixreports?
5. How to create Joinedreports?
6. How to create Summaryreports?
7. How to add custom field formulas?
8. How to create immediate reports and Scheduledreports?
9. Creating Vertical Bars, Horizontal and Piecharts.
10. Adding Reports toDashboards.
11. How to add Tabular Report toDashboard?
12. Adding Filters toReports.