FOUR YEAR UNDERGRADUATE PROGRAM (NEP–2020)

Program: Bachelor in Computer Application (2024 -28)

DISCIPLINE – COMPUTER APPLICATION

SESSION – 2024 -25

DSC -01 to 20		DSE -01 to 12	
Code	**Title**	**Code**	**Title**
CASC -01	Discrete Mathematics	CASE -01	Cyber Security and Cyber Law
CASC -02T	Computer Fundamental and MS-Office	CASE -02	Artificial Intelligence and Expert System
CASC -02P	**Lab 1:** MS-Office	CASE -03	Numerical Analysis
CASC -03T	Operating System	CASE -04	Computer System Architecture
CASC -03P	**Lab 2:** Operating System	CASE -05	Computer Graphics
CASC -04	Digital Electronics	CASE -06T	Cloud Computing
CASC -05T	Programming in C++	CASE -06P	**Lab 13:** Cloud Computing
CASC -05P	**Lab 3:** Programming in C++	CASE -07	Cryptography and Network Security
CASC -06T	Data Structure	CASE -08	Advanced Operating systems
CASC -06P	**Lab 4:** Data Structure Using C++	CASE -09	Soft Computing
CASC -07	Software Engineering	CASE -10	Digital Image Processing
CASC -08T	Relational Database Management System	CASE -11	Big Data Analytics
CASC -08P	**Lab 5:** Relational Database Management System (Oracle/MySQL)	CASE -12	Major Project-2
CASC -09T	Programming in Java		
CASC -09P	**Lab 6:** Programming in Java	**DGE -01 & 02**	
CASC -10	Theory of Computation	CAGE -01T	Computer Fundamental and MS-Office
CASC -11T	Web Technology	CAGE -01P	**Lab 1:** MS-Office
CASC -11P	**Lab 7:** Web Technology	CAGE -02T	Operating System
CASC -12T	Python Programming	CAGE -02P	**Lab 2:** Operating System
CASC -12P	**Lab 8:** Python Programming	**VAC**	
CASC -13	Data Mining and Data Warehousing	CAVAC-01	Artificial Intelligence
CASC -14T	Programming in .Net	**SEC**	
CASC -14P	**Lab 9:** Programming in .Net	CASEC-01	ICT Based Learning
CASC -15T	Machine Learning		
CASC -15P	**Lab 10:** Machine Learning		
CASC -16	Data Communication and Computer Networking		
CASC -17T	Advanced Java		
CASC -17P	**Lab 11:** Advanced Java		
CASC -18	Major Project-1		
CASC -19T	Mobile Application Development		

Dr. H.S. Hota (Chairman)

CASC -19P	**Lab 12:** Mobile Application Development		
CASC -20T	Fundamentals of IoT and Applications		
CASC -20P	**Lab 14:** Fundamentals of IoT and Applications		

Program Outcomes (PO):

- Gain a complete exposure to the theories and practices of Computer Application.
- Get transformed into a skilled learner and active programmer, enabling the students to focus on their higher studies.
- Value computer professionals and programmers.
- Explore how the concepts and applications of Computer lead to innovative thinking with a problem-solving attitude.

Program Specific Outcomes (PSO):

- Understand the basic computer knowledge and concept of operating systems.
- Understanding the concept of programming and develop program in C++.
- Understanding the concept of data structure and implementation with C/C++.
- Understanding the concept of DBMS and implementation in MySQL /Oracle.
- Understanding the concept of OOPs and Java programming and develop program in Java.
- Understanding the concept of web technology and its implementation with HTML/CSS/DHTML/PHP.
- Understand the basic concept of data and computer networks.
- Understanding the basic concept of digital electronics.
- Understanding the basic concept of cyber security and cyber law.
- Understanding the basic concept of Artificial Intelligence.

CURRICULUM STRUCTURE

Scheme

Program: BCA

Discipline: Computer Application

Semester	Course Type	Course Code	Course Title	Total Credit	Total Marks	
					Max	Min
1st Semester	DSC (Major/Core)	CASC-01	Discrete Mathematics	4	100	40
		CASC-02T	Computer Fundamental and MS-Office	3	100	40
		CASC-02P	**Lab 1**: MS-Office	1	50	20
		CASC-03T	Operating System	3	100	40
		CASC-03P	**Lab 2:** Operating System	1	50	20
2nd Semester	DSC (Major/Core)	CASC-04	Digital Electronics	4	100	40
		CASC-05T	Programming in C++	3	100	40
		CASC-05P	**Lab 3:** Programming in C++	1	50	20
		CASC-06T	Data Structure	3	100	40
		CASC-06P	**Lab 4:** Data Structure Using C++	1	50	20
3rd Semester	DSC (Major/Core)	CASC-07	Software Engineering	4	100	40
		CASC-08T	Relational Database Management System	3	100	40
		CASC-08P	**Lab 5:** Relational Database Management System (Oracle/MySQL)	1	50	20
		CASC-09T	Programming in Java	3	100	40
		CASC-09P	**Lab 6**: Programming in Java	1	50	20
	DSE	CASE-01	Cyber Security and Cyber Law	4	100	40
4th Semester	DSC (Major/Core)	CASC-10	Theory of Computation	4	100	40
		CASC-11T	Web Technology	3	100	40
		CASC-11P	**Lab 7**: Web Technology	1	50	20
		CASC-12T	Python Programming	3	100	40
		CASC-12P	**Lab 8:** Python Programming	1	50	20

Dr. H.S Hota (Chairman) (Dr. K.B. Dubey) (Dr S K Saha) Dr. S. Jain

	DSE	CASE-02	Artificial Intelligence and Expert System	4	100	40
5th Semester	DSC (Major/Core)	CASC-13	Data Mining and Data Warehousing	4	100	40
		CASC-14T	Programming in .Net	3	100	40
		CASC-14P	**Lab 9**: Programming in .Net	1	50	20
		CASC-15T	Machine Learning	3	100	40
		CASC-15P	**Lab 10:** Machine Learning	1	50	20
	DSE	CASE-03	Numerical Analysis	4	100	40
6th Semester	DSC (Major/Core)	CASC-16	Data Communication and Computer Networking	4	100	40
		CASC-17T	Advanced Java	3	50	20
		CASC-17P	**Lab 11:** Advanced Java	1	100	40
		CASC-18	Major Project-1	4	50	20
	DSE	CASE-04	Computer System Architecture	4	100	40
7th Semester	DSC (Major/Core)	CASC-19T	Mobile Application Development	3	100	40
		CASC-19P	**Lab 12:** Mobile Application Development	1	50	20
	DSE	CASE-05	Computer Graphics	4	100	40
		CASE-06T	Cloud Computing	3	100	40
		CASE-06P	**Lab 13:** Cloud Computing	1	50	20
		CASE-07	Cryptography and Network Security	4	100	40
		CASE-08	Advanced Operating systems	4	100	40
8th Semester	DSC (Major/Core)	CASC-20T	Fundamentals of IoT and Applications	3	100	40
		CASC-20P	**Lab 14:** Fundamentals of IoT and Applications	1	50	20
	DSE	CASE-09	Soft Computing	4	100	40
		CASE-10	Digital Image Processing	4	100	40
		CASE-11	Big Data Analytics	4	100	40
		CASE-12	Major Project - 2	4	100	40

Dr H.S. Hota (Chairman) (Dr. K.B. Dubey) Dr SK Sahu (Dr. Anil Sharma) (Dr. S. Dalai) (Sushil Kumar Saha) (Dr. Sheelendra Arya) ANJEETA KUJUR (Dr. Ashoke Shukla) (H.S.B. Tandi)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER APPLICATION
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Computer Application (Certificate / Diploma / Degree/Honors)		Semester -III	Session: 2024-2025
1	Course Code	CASC-07	
2	Course Title	Software Engineering	
3	Course Type	DSC (Discipline Specific Course)	
4	Pre-requisite	*As per program*	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able: • Understand the fundamentals of software Engineering. • Identify and analyze the requirement of system. • Understand the design of existing System and Design the proposed System. • Understand the fundamentals of Software project management. • Create the test-cases and perform System testing. • Apply the concepts of software engineering for new system development.	
6	Credit Value	4 Credits	*Credit = 15 Hours - Learning & Observation*
7	Total Marks	Max. Marks: 100	Min Passing Marks: 40

PART -B: Content of the Course

Total No. of Teaching–learning Periods (01 Hr. per period) – 60 Periods (60 Hours)

Unit	Topics (Course contents)	No. of Period
I	**Software Engineering & Models:** The evolving role of software, changing nature of software, Evolution of Software Engineering, Characteristics of software. SDLC Introduction, Software Process Models: Waterfall Model, V-model, Prototype model, RAD model, Incremental development model, Spiral Model, Evolutionary Model, RAD Model, Agile model.	15
II	**2 Requirements engineering process**: Requirement Gathering and Analysis, Feasibility studies, requirements validation, requirements management. Functional and Non-Functional Requirements, User requirements, System Requirements, SRS documents. **Design Engineering:** Software design concepts, design process, design methodology, Function-oriented software design, Structured analysis, Structured Chart, DFD, Concept of Modularity, Cohesion and Coupling, OOAD (Object oriented analysis and design) Concept, UML diagram, different view of software using UML diagrams, Class diagram, Object diagram, Activity diagram, Interaction diagram, State chart diagram.	15
III	**Software Project Management:** Need of Software project management, Software project managements complexities, Types of management in SPM, Project Planning, Software project scheduling, Project size estimation: LOC, Function Point. Project estimation techniques: Empirical, Analytical and Heuristic technique, COCOMO models.	15
IV	**Testing Strategies and Quality Management:** Testing Strategies for software, black-box and white-box testing, Verification and Validation, Unit-testing, Integration and system testing, Debugging approach. **Software Reliability & Quality Management:** Software Reliability, Quality concepts, software quality assurance, software reviews, formal technical reviews, software configuration management, software reliability, the ISO 9000 quality standards, Capability Maturity Model, Risk Management.	15
Keywords	*Software, software Engineering, Models, Requirement engineering, Software Designing Tools, Testing.*	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota Chairman (Dr. K.B. Dubey) (Dr. S.K. Sahu) Dr. S. Jain (Dr. Amit Sharma) R. Khanday (Sharad Thakker) ANJEETA KUJUR (Dr. A.S. Sharma)

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Rajib Mall, Fundamentals of Software Engineering, 5th ed, PHI publication.
- Roger S. Pressman, Software Engineering, A practitioner's Approach, 6th edition, McGraw Hill International Edition.

Reference Books Recommended:

- Sommerville, Software Engineering, 7th edition, Pearson Education.
- James Rumbaugh, Ivar Jacobson, The unified modelling language user guide Grady Booch, Pearson Education.

Online Resources:

- NPTEL YouTube Channel: Software Engineering Lectures by Prof Rajib Mall, IIT Kharagpur https://youtube.com/playlist?list=PLbRMhDVUMngf8oZR3DpKMvYhZKga90JVt&si=tTBITZUdivHpNz1H
- NPTEL YouTube Channel: Software Engineering Lecture Series https://youtube.com/playlist?list=PL8751DA481F0F0D17&si=07IfYV7GP8_oc1xZ

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks:	**100 Marks**
Continuous Internal Assessment (CIA):	**30 Marks**
End Semester Exam (ESE):	**70 Marks**

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): **20 & 20** Assignment / Seminar - **10** Total Marks - **30**	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against **30** Marks
End Semester Exam (ESE):	**Two section – A & B** Section A: **Q1**. Objective – 10 x1= **10** Mark; **Q2**. Short answer type- **5x4 =20** Marks Section B: Descriptive answer type qts.,**1out of 2** from each unit-**4x10=40 Marks**	

Name and Signature of Convener & Members of CBoS:

Dr. H. S Hota (Chairman)
(Dr. K. B. Dubey)
(Dr. S. K. Sahu)
(Dr. S. Jain)
(Dr. A. S. K. Khuntey)
(Sushil Kumar Sahu)
(Dr. Sarvesh Thakur)
(Dr. V. K. Gupta)
(ANJLETA KUJUR)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER APPLICATION
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Computer Application *(Certificate / Diploma / Degree/Honors)*			Semester - III	Session: 2024-2025
1	Course Code	**CASC-08T**		
2	Course Title	**Relational Database Management System**		
3	Course Type	**DSC (Discipline Specific Course)**		
4	Prerequisite (if, any)	*As per program*		
5	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Learn about Database Concepts, Architecture, various Users, Data Models and Data Management. • Familiar with RDBMS Software like Oracle and MySql. • Create various Tables and Databases. • Explore various SQL commands. • Create Database on the basis of E-R diagrams for Minor and Major Project.		
6	Credit Value	**3 Credits**	***Credit = 15 Hours - Learning & Observation***	
7	Total Marks	**Max. Marks: 100**	**Min Passing Marks: 40**	

PART -B: Content of the Course

Total No. of Teaching–Learning Periods (01 Hr. per period) - 45 Periods (45 Hours)

Unit	Topics (Course contents)	No. of Period
I	**Overview of Database Management**: Introduction, Data Processing versus Data Management, Data Models: Network Model, Relational Model, Hierarchical Model, Instance and schema, View of Database system, File Oriented Approach vs Database Oriented Approach, Data Independence, DBMS Architecture, Database Administration Roles, Database languages: DDL, DML, DCL, TCL, Different kinds of DBMS users, Introduction to Data Dictionary.	12
II	**Database Design and E-R Model:** Introduction, Entity, Strong and weak entities, Relationship, Cardinality, Attributes, Concept of keys: Super key, Candidate key, Primary key, Alternate key, Foreign key, ER Diagram, Constraints in Database, Codd's Rules, Extended ER features: Generalization, Specialization and Aggregation, Participation, Converting an E-R model into relational Schema.	11
III	**Relational Database Design and Operations:** Introduction, Dependencies: Functional dependencies, Multivalued Dependencies, Join dependencies, Database anomalies, Decomposition, Normalization: Normal forms 1NF, 2NF, 3NF, BCNF, 4NF, 5NF, De-normalization. Relational Algebra: Select operation, Project operation, Union operation, Cartesian Product operation, Intersection operation, Join operation, Different types of joins (Inner join, Outer join, Self join).	11
IV	**Transaction:** Introduction, Desirable properties of transaction (ACID), Concurrency control techniques, Serializability.	11
Keywords	*Data Models, Data Dictionary, E-R Model, E-R Diagram, Keys, Functional Dependency, Anomalies, Normalization, Relational Algebra, Concurrency, Serializability.*	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota (Chairman) · (Dr K.B. Dubey) · (Dr SK Saha) · (Dr. Anil Sharma) · (Dr. S. Jain) · (Dr. AS. Sha) · (Sushil Kumar Saha) · (Suresh Thakur) · ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Database system concept, H. Korth and A. Silberschatz, TMH Publications.
- Data Base Management System, Alexies & Mathews,Vikash publication.
- Data Base Management System, C. J. Date ,Narosha Publication.
- Data Base Management System By James Matin.

Reference Books Recommended:

- Principles of Database System By Ullman.
- Program Design, Peter Juliff, PHI Publications.
- The Complete Reference, Kevin Loney, Oracle Press.
- SQL, PL/SQL The Programming Language of Oracle, Ivan Bayross , PustakKosh Publication.
- Microsoft SQL Server Management and Administration, Ross, STM Publications.

Online Resources:

- SWAYAM URL link for DBMS and RDBMS: https://youtu.be/f6LGtJutWyA
- SWAYAM URL link for DBMS and RDBMS: https://youtu.be/IoL9Ve2SRwQ
- SWAYAM URL link for DBMS and RDBMS: https://**swayam**.gov.in/courses/4434-data-base-management-system.
- Introduction of DBMS from SWAYAM: https://onlinecourses.swayam2.ac.in/cec19_cs05/preview
- Introduction of RDBMS from SWAYAM : https://onlinecourses.nptel.ac.in/noc19_cs46/preview
- Introduction to DMBS: https://www.w3schools.in/dbms/intro
- Data independence: https://www.w3schools.in/dbms/data-independence
- Generalization and Aggregation: https://www.w3schools.in/dbms/generalization-aggregation
- Introduction to DMBS: https://www.javatpoint.com/dbms-tutorial

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks:	**100 Marks**
Continuous Internal Assessment (CIA):	**30 Marks**
End Semester Exam (ESE):	**70 Marks**

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): **20 +20** Assignment / Seminar - **10** Total Marks - **30**	Better marks out of the two Test / Quiz obtained marks in Assignment shall be considered against **30** Marks
End Semester Exam (ESE):	**Two section – A & B** Section A: **Q1**. Objective – **10 x1= 10** Mark; **Q2**. Short answer type- **5x4 =20** Marks Section B: Descriptive answer type qts.,**1 out of 2** from each unit-**4x10=40 Marks**	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota (Chairman) (Dr K.B. Dubey) (Dr. S.K. Sahu) (Dr. S. Jain) (Dr. Anil Sharma) (Sushil Kumar Sahu) (Suresh Thakur) ANJEETA KUJUR (Dr. A.S. Sha)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER APPLICATION
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Computer Application *(Certificate / Diploma / Degree)*			**Semester - III**	Session: 2024-2025
1	Course Code	**CASC-08P**		
2	Course Title	**Lab 5: Relational Database Management System (Oracle/MySQL)**		
3	Course Type	**Practical**		
4	Prerequisite	*As per program*		
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Learn about Database Concepts, Architecture, various Users, Data Models and Data Management which helps them to interact with various Databases. • Develop various Tables and Databases which helps them to develop new Software. • Practice various SQL commands which helps them to generate new relationships among various Tables and Databases which are useful for Software Development. • Familiar with RDBMS Software like Oracle and SQL Server which are used as Backend for Software Development. • Develop new Databases for their Minor and Major Project Development which enhances their Data Storage, Data Accessibility and Data Management.		
6	Credit Value	**1 Credits**	*Credit =30 Hours Laboratory or Field Learning/Training*	
7	Total Marks	**Max. Marks: 50**	**Min Passing Marks: 20**	

PART -B: Content of the Course		
Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)		
Module	**Topics (Course contents)**	**No. of Period**
List of Practical Experiments	1. Design an employee table in Oracle/SQL Server having eid(primary key) ename, edesignation, edoj, edob, eaddress, salary, econtact as fields and answer the following questions : a) Insert five records in above created table. b) Display all five records. c) Delete the fourth record. d) Update the third record of the field ename as 'hari'. e) Add one new field in the table. 2. Design a salary table Oracle/SQL Server with one primary key and foreign key(employee table) having following fields : Month, working days, deptid, gross, incentive, deduction and net salary. a) Insert five records in the above created table. b) Display all five records. c) Use foreign key relations and display records. d) Update the second record of field deptid as 'Sales '. e) Add one new field in the table. 3. Create a new user in Oracle/SQL Server. 4. Create a view in Oracle/SQL Server. 5. Create a new table in Oracle/SQL Server and practice for join operation. 6. Create a new user in Oracle/SQL Server and practice for the commit and rollback command.	**30**

7. Create a new database in Oracle/SQL Server having at least five tables for the Hotel Management System.
8. Create a new database in Oracle/SQL Server having at least four tables for Covid Vaccination Management System.
9. Create a new database in Oracle/SQL Server having at least five tables for the Library Management System.
10. Create a new table in Oracle/SQL Server and practice for Group by and Order by Clause.
11. Create a new table in Oracle/SQL Server and practice for max(), min(), avg() and count() functions.
12. Create a new table in Oracle/SQL Server and practice for lower(), substr(),trim() and upper() functions.
13. Create a new table in Oracle/SQL Server and practice for unique and check constraints.
14. Create a new table in Oracle/SQL Server and practice for any two date formats.
15. Create a new table in Oracle/SQL Server and practice using clauses.
16. Create a new table in Oracle/SQL Server and practice for having clauses with sub queries.
17. Create a new table in Oracle/SQL Server and practice for aliases in any table.
18. Create a new table in Oracle/SQL Server and practice for inner and outer join.
19. Create a new table in Oracle/SQL Server and practice for Drop command.
20. Write a PL/SQL program for addition of two numbers.
21. Write a PL/SQL program to find the factorial value of any entered number.
22. Write a PL/SQL program for swapping of two numbers.
23. Write a PL/SQL program to print the first ten Natural Numbers.
24. Write a PL/SQL program to generate even series upto five digits starting from 2 and sum all the terms.
25. Write a PL/SQL program to practice for implicit and explicit cursors.

Note: Concerned teacher can add additional experiment as per requirement.

Keywords	*TABLE, SQL, PL/SQL.*

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota (Chairman) (Dr. K.B. Dubey) (Dr SK Sahu) (Dr. S. Jain) (Dr. Anil Sharma) (Sushil Kumar Sahu) (Suresh Thakur) ANJEETA KUJU

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Database system concept, H. Korth and A. Silberschatz, TMH Publications.
- Data Base Management System, Alexies & Mathews,Vikash publication.
- Data Base Management System, C. J. Date ,Narosha Publication.
- Data Base Management System By James Matin.

Reference Books Recommended:

- Principles of Database System by Ullman.
- Program Design, Peter Juliff, PHI Publications.
- The Complete Reference, Kevin Loney, Oracle Press.
- SQL, PL/SQL The Programming Language of Oracle, Ivan Bayross, PustakKosh Publication.

- Microsoft SQL Server Management and Administration, Ross, STM Publications.

Online Resources:

- SWAYAM URL link for DBMS and RDBMS: https://youtu.be/f6LGtJutWyA
- SWAYAM URL link for DBMS and RDBMS: https://youtu.be/IoL9Ve2SRwQ
- SWAYAM URL link for DBMS and RDBMS : https://swayam.gov.in/courses/4434-data-base-management-system

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: 50 Marks

Continuous Internal Assessment (CIA): 15 Marks

End Semester Exam (ESE): 35 Marks

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): **10 & 10** Assignment/Seminar +Attendance - **05** Total Marks - 15	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against **15** Marks
End Semester Exam (ESE):	**Laboratory / Field Skill Performance:** On spot Assessment A. Performed the Task based on lab. work - 20 Marks B. Spotting based on tools & technology (written) – 10 Marks C. Viva-voce (based on principle/technology) - 05 Marks	Managed by Course teacher as per lab. status

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota (Chairman) (Dr. K.B. Dubey) (Dr SKSahu) Durgesh Kotangle (Dr. Anil Sharma) (Dr. S. Jain) (Dr. ASB) R. Khayulley (Sushil kumar Sahu) (Eweresh Thakur) Dr. Nidhi Ambastha Shailendra Aggy Tarun Sakulya Kumar ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

DEPARTMENT OF COMPUTER APPLICATION

COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Computer Application *(Certificate / Diploma / Degree/Honors)*		Semester -III	Session: 2025-2026
1	Course Code	CASC-09T	
2	Course Title	Programming in Java	
3	Course Type	DSC (Discipline Specific Course)	
4	Prerequisite (if, any)	*As per program*	
5	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Understand fundamentals of java programming environment • Understand the importance of features of Java programming. • Create user defined Classes/interfaces and Packages which help them to develop new Application Software and Utility Software. • Develop new Online Software and Internet Games with the help of Applet and AWT Packages. • Familiar about Applet, Thread and Servlet Life Cycle which helps them to develop important applications for Internet Users.	
6	Credit Value	3 Credits	*Credit = 15 Hours - Learning & Observation*
7	Total Marks	Max. Marks: 100	Min Passing Marks: 40

PART -B: Content of the Course

Total No. of Teaching–Learning Periods (01 Hr. per period) - 45 Periods (45 Hours)

Unit	Topics (Course contents)	No. of Period
I	**Overview of JAVA:** The genesis of java, history of java, java virtual machine (JVM), java development kit (JDK), source files, jar files, compiling and running of files, byte code, platform independency, data types, literals, variables, constants, array and its types, operators, conditional and looping statements, various packages, introduction of class, objects and methods, nested and inner class, string handling, constructor and its types.	12
II	**Inheritance:** concept of super and sub class, types of inheritance, Polymorphism: method overloading, method overriding; abstract class, constructor in multilevel inheritance, using final with inheritance. **Interface:** defining and implementing interface, extending interface, nested interface, importance of interface in java. **Package:** defining package, rules for creating a new package, concept of class-path, access protection, importing package.	11
III	**Exception Handling and Multithreading:** using try and catch, multiple catch classes, nested try statements, throw, throws and finally, types of exception: built in exception, checked/unchecked exception, creating own exception class. **Java Thread Model:** main thread, creating own thread, life cycle of thread, thread priorities, synchronization, inter thread communication, suspending, resuming and stopping thread.	11
IV	**Java Packages: I/O classes:** Byte Stream and Character Stream, Predefined Stream, reading console input, writing console output. **Applet:** Applet Life Cycle, creating an applet, Using image and sound in applet. **Lang:** Various classes, Importance class Definition, **Util:** Framework, Event Model, Scanner Class **AWT:** Exploring AWT, Event handling – The delegation-event model, Event classes, Source of event, Event listener interfaces, handling mouse and keyboard event, Adapter class.	11
Keywords	*Java Virtual Machine (JVM), Java Development Kit (JDK), Interface, Package, Threads, Applet, AWT.*	

Name and Signature of Convener & Members:

Dr. H.S. Hota Chairman (Dr. K.B. Dubey) (Dr. S.K. Sahu) (Dr. S. Jain) (Dr. Anil Sharma) K. Khuntey Dr. A.S.

(Sushil Kumar Sahu) Suresh Thakur Kotangle Shailendra ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Naughton P and Schildt H., Osborne, The complete reference, McGraw-Hill, Berkeley Publication.
- James R. Laverick, An Introduction to JAVA programming, Firewall Media publication.

Reference Books Recommended:

- E. Balgurusamy, Java Programming, McGraw-Hill Publication.
- Rashmi Kanta Das, Core JAVA for beginners, Vikas Publication.

Online Resources:

- SWAYAM URL Link for Java
  - https://onlinecourses.swayam2.ac.in/aic20_sp13/preview
  - https://onlinecourses.nptel.ac.in/noc19_cs84/preview
  - https://www.dqindia.com/iit-bombay-offers-free-online-course-java-swayam-platform/
  - https://www.classcentral.com/course/swayam-programming-in-java-12930
- W3schools Java Tutorial.
  Java Tutorial (w3schools.com)
- Online Platforms to Exercise and Execute the Java Programs
  - Online Java Compiler (programiz.com)
  - Solve Java | HackerRank
  - Online Java Compiler - Online Java Editor - Java Code Online (jdoodle.com)
- NPTEL Channel: Programming in Java
  Programming In Java - Course (nptel.ac.in)

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks: **100 Marks**

Continuous Internal Assessment (CIA): **30 Marks**

End Semester Exam (ESE): **70 Marks**

Continuous Internal Assessment (CIA): **(By Course Teacher)**	Internal Test / Quiz-(2): **20 +20** Assignment / Seminar - **10** Total Marks - **30**	Better marks out of the two Test / Quiz obtained marks in Assignment shall be considered against **30** Marks
End Semester Exam (ESE):	**Two section – A & B** Section A: **Q1**. Objective – **10 x1= 10** Mark; **Q2.** Short answer type- **5x4 =20 Marks** Section B: Descriptive answer type qts.,**1 out of 2** from each unit-**4x10=40 Marks**	

Name and Signature of Convener & Members:

Dr H.S. Hota Chairman
(Dr Kiran Bala Dubey)
(Dr SK Sahu)
(Dr. Anil Sharma)
(Dr. S. Jain)
Sushil kumar Sahu
(Suresh Thakur)
Shailendra Arya

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER APPLICATION
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Computer Application *(Certificate / Diploma / Degree)*	Semester – III	Session: 2025-2026

1	Course Code	CASC-9P
2	Course Title	Lab 6: Programming in Java
3	Course Type	Practical
4	Prerequisite (if, any)	*As per program*
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Execute the program in java • Implement the concept of multi-threading • Develop new Packages which help them to develop new application software and Utility Software. • Develop new Online Software and Internet Games with the help of Applet and AWT Packages. • Familiar about Applet, Thread and Servlet Life Cycle which helps them to develop value added services for Internet Users.
6	Credit Value	1 Credits *Credit =30 Hours Laboratory or Field Learning/Training*
7	Total Marks	Max. Marks: 50 Min Passing Marks: 20

PART -B: Content of the Course

Total No. of learning-Training/performance Periods: 30 Periods (30 Hours)

Module	Topics (Course contents)	No. of Period
Lab./Field Training/ Experiment Contents of Course	1. Write a program to check palindrome number. 2. Write a program to check Armstrong number. 3. Write a program to check the prime number. 4. Write a program to calculate simple interest using the GUI Form. 5. Write a program to demonstrate the thread life cycle. 6. Write a program to show the use of applet. 7. Write a program to demonstrate the concept of arrays. 8. Write a program to find the second largest and second smallest number in array. 9. Write a program to perform multiplication of two matrices. 10. Write a program to demonstrate the concept of method overloading. 11. Write a program to demonstrate the concept of constructor overloading. 12. Write a program to demonstrate the concept of inner classes. 13. Write a program to demonstrate the concept of inheritance. 14. Write a program to demonstrate the concept of access specifiers in java. 15. Write a program to implement the concept of interface. 16. Write a program to show the creation of package in java. 17. Write a program to design the user registration form with basic registration details. 18. Write a program to show the exception handling process in java. 19. Write a program to show the significance of multithreading. 20. Write a program to read the data from the console device and store it in any file in secondary storage. 21. Write a program to copy the content of any file into another file. 22. Write a program to demonstrate the advantages of event delegation model. 23. Write a program in java for command line value passing. **Note:** Concerned teacher can add additional practical exercises as per requirement.	30

Keywords	Class, Object, interface, Inheritance, package, exception handling, threads, applet, AWT.

Name and Signature of Convener & Members:

Dr. H.S. Hota Chairman (Dr. K.B. Dubey) (Dr SK Sahu) (Dr. Anil Sharma) (Dr. S. Jain) R. Khuntey (Sushil Kumar Sahu) (Suresh Thakur) Shailendra Arya ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Naughton P and Schildt H., Osborne, The complete reference, McGraw-Hill, Berkeley Publication.
- James R. Laverick, An Introduction to JAVA programming, Firewall Media publication.

Reference Books Recommended:

- E. Balgurusamy, Java Programming, McGraw-Hill Publication.
- Rashmi Kanta Das ,Core JAVA for beginners, Vikas Publication.

Online Resources:

- SWAYAM URL Link for Java
  - https://onlinecourses.swayam2.ac.in/aic20_sp13/preview
  - https://onlinecourses.nptel.ac.in/noc19_cs84/preview
  - https://www.dqindia.com/iit-bombay-offers-free-online-course-java-swayam-platform/
  - https://www.classcentral.com/course/swayam-programming-in-java-12930
- W3schools Java Tutorial.
  Java Tutorial (w3schools.com)
- Online Platforms to Exercise and Execute the Java Programs
  - Online Java Compiler (programiz.com)
  - Solve Java | HackerRank
  - Online Java Compiler - Online Java Editor - Java Code Online (jdoodle.com)
- NPTEL Channel: Programming in Java
  Programming In Java - Course (nptel.ac.in)

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks:	**50 Marks**
Continuous Internal Assessment (CIA):	**15 Marks**
End Semester Exam (ESE):	**35 Marks**

Continuous Internal Assessment (CIA): **(By Course Teacher)**	Internal Test / Quiz-(2): **10 & 10** Assignment/Seminar +Attendance - **05** Total Marks - **15**	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against **15** Marks
End Semester Exam (ESE):	**Laboratory / Field Skill Performance:** **On spot Assessment** **A. Performed the Task based on lab. work - 20 Marks** **B. Spotting based on tools & technology (written) – 10 Marks** **Viva-voce (based on principle/technology) - 05 Marks**	**Managed by Course teacher as per lab. status**

Name and Signature of Convener & Members:

Dr. H.S. Hota Chairman (Dr. K.B. Dubey) (Dr SK Sahu) Deepesh Kotangle (Dr. Anil Sharma) (Dr. S. Jain) R. Khuntey (Sushil Kumar Sahu) (Suresh Thakur) Shailendra Arya (Dr. A.S. Sharma) ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF COMPUTER APPLICATION
COURSE CURRICULUM

PART-A: Introduction

Program: Bachelor in Computer Application *(Certificate / Diploma / Degree/Honors)*	Semester – III	Session: 2024-2025

1	Course Code	**CASE-01**		
2	Course Title	**Cyber Security and Cyber Law**		
3	Course Type	**DSE (Discipline Specific Elective)**		
4	Prerequisite	***As per Program***		
5	Course Learning. Outcomes(CLO)	At the end of this course, students will be able to: • Understand the fundamental concepts in cyber security and distinguish among the attacks, threats and vulnerabilities. • Identify, differentiate and explain different cyber crimes and frauds. • Understand the concept of Cyber security issues and challenges associated with it. • Understand the cyber crimes, their nature, legal remedies and how to report the crimes through available platforms and procedures. • Understand the basic concepts related to E-Commerce and digital payments.		
6	Credit Value	**4 Credits**	***Credit = 15 Hours -Learning & Observation***	
7	Total Marks	**Max. Marks: 100**		**Min Passing Marks: 40**

PART – B: Content of the Course

Total No. of Teaching– Learning Periods (01 Hr. per period) - 45 Periods (45 Hours)

Unit	Topics (Course contents)	No .of Period
I	**Introduction:** Defining Cyberspace, Architecture of cyberspace, Internet, World wide web, Internet society, Regulation of cyberspace, Concept of cyber security, Issues and challenges of cyber security, Cyber Physical System Security, Classification of cyber crimes, Common cyber crimes- cyber crime targeting computers and mobiles, cyber crime against women and children, financial frauds, social engineering attacks, malware and ransomware attacks, zero day and zero click attacks, Cybercriminals modus-operandi, Reporting of cyber crimes, Remedial and mitigation measures.	15
II	**Authentication:** Vulnerability and vulnerability assessment, Intrusion Detection and Intrusion Prevention System, Introduction of Authentication, User Authentication Methods, Biometric Authentication Methods.	15
III	**Different Securities:** Window Security, Smartphone Security, Browser Security, Web Security, Email Security, Wi-Fi Security, and Social Media Security: Challenges, opportunities and pitfalls in online social network, Best practices for the use of Social media, Introduction to digital payments, Components of digital payment and stakeholders, Digital payments related common frauds and preventive measures. RBI guidelines on digital payments and customer protection in unauthorized banking transactions.	15
IV	**Cyber Law Basics:** Information Technology Act 2000-Amendments; Laws regarding posting of inappropriate content, Relevant provisions of Payment Settlement Act 2007, Cybercrimes and offenses dealt with IPC, RBI Act, IPR in India.	15
Keywords	*Cyberspace, Cybercrime, Cyber security, Physical System security, Ransomware, Modus-operandi, Authentication, Vulnerability, Intrusion Detection and Prevention, Cyber Law.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

Dr. Vivek Sharma

ANJEETA KUJ

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Cyber criminology: Exploring Internet Crimes and Criminal Behavior by K. Jaishankar, CRC press.
- Data communication and Networking by B. Forouzan, TMH.
- An unofficial guide to ethical hacking by Ankit Fadia, trinity publisher.
- An ethical guide to hacking mobile phones by Ankit Fadia, trinity publisher.
- Computer Network Security and Cyber Ethics by Siva Ram Murthy,B.S. Manoj , McFarland and Company , INC

Reference Books Recommended:

- Cyber Crime Impact in the New Millennium, by R. C Mishra , Auther Press. Edition 2010.
- Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives by Sumit Belapure and Nina Godbole, Wiley India Pvt. Ltd. (First Edition, 2011)
- Security in the Digital Age: Social Media Security Threats and Vulnerabilities by Henry A. Oliver, Create Space Independent Publishing Platform. (Pearson , 13th November, 2001)
- Electronic Commerce by Elias M. Awad, Prentice Hall of India Pvt Ltd.
- Cyber Laws: Intellectual Property & E-Commerce Security by Kumar K, Dominant Publishers.
- Network Security Bible, Eric Cole, Ronald Krutz, James W. Conley, 2nd Edition, Wiley India Pvt. Ltd.
- Fundamentals of Network Security by E. Maiwald, McGraw Hill.

Online Resources:

- Cyber Security from SWAYAM: https://onlinecourses.swayam2.ac.in/cec21_cs09/preview
- Introduction to Cyber Security from SWAYAM: https://onlinecourses.swayam2.ac.in/nou20_cs01/preview
- Cyber Security for Beginners: https://heimdalsecurity.com/pdf/cyber_security_for_beginners_ebook.pdf
- Cyber Criminology by K. Jaishankar: https://larose.staff.ub.ac.id/files/2011/12/Cyber-Criminology-Exploring-Internet-Crimes-and-Criminal-Behavior.pdf
- Fundamental of Cyber Security by Dr. Jitendra Pandey: http://www.uou.ac.in/sites/default/files/slm/FCS.pdf
- Information Technology Act 2000: https://www.meity.gov.in/content/information-technology-act-2000
- Information Technology Act: https://www.meity.gov.in/content/information-technology-act
- Cyber Crime Law and Practice: https://www.icsi.edu/media/webmodules/publications/Cyber_Crime_Law_and_Practice.pdf

PART-D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks:	**100 Marks**
Continuous Internal Assessment(CIA):	**30 Marks**
End Semester Exam(ESE):	**70 Marks**

Continuous Internal Assessment(CIA): **(By Course Teacher)**	Internal Test / Quiz- (2): **20 & 20** Assignment/Seminar- **10** Total Marks - **30**	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against **30** Marks
End Semester Exam (ESE):	**Two section – A & B** Section A: Q1. Objective – **10** x1= **10** Mark; Q2. Short answer type- **5x4 =20 Marks** Section B: Descriptive answer type qts., **1 out of 2** from each unit-**4x10=40 Marks**	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM(2024–28)
Department of Commerce and Management

COURSECURRICULUM

PART-A: Introduction				
Program:BachelorinBusiness Administration *(Certificate/ Diploma/Degree/Honors)*			**Semester-III**	Session:**2024-2026**
1	**CourseCode**	**BBVAC - 02**		
2	**CourseTitle**	**Digital Marketing**		
3	**CourseType**	**Value Addition Course [VAC]**		
4	**Pre-requisite**(if, any)	***Asperrequirement***		
5	**CourseLearning. Outcomes(CLO)**	➢ Interpret the concept of digital marketing and its integration of traditional marketing. ➢ Learn thebehaviour of online consumers. ➢ Create digital media campaigns through an understanding of email content and social media marketing. ➢ Leverage digital strategies to gain competitive advantage for business and career.		
6	**CreditValue**	**2Credits**	***Credit=15 Hours-learning& Observation***	
7	**TotalMarks**	**Max.Marks: 50**	**MinPassingMarks: 20**	

PART-B: Contentof theCourse		
TotalNo.ofTeaching–learningPeriods (01Hr. perperiod)-30Periods(30 Hours)		
Unit	**Topics(Coursecontents)**	**No.of Period**
I	Fundamentals of Digital marketing & Its Significance, Traditional marketing Vs Digital Marketing, Evolution of Digital Marketing, Digital Marketing Landscape, Key Drivers, Digital Consumer & Communities, Gen Y & Netizen's expectation & influence w.r.t Digital Marketing	**08**
II	The Digital users in India, Digital marketing Strategy- Consumer Decision journey, POEM Framework, Segmenting & Customizing messages, Digital advertising Market in India, Skills in Digital Marketing, Digital marketing Plan.	**07**
III	Terminology used in Digital Marketing, PPC and online marketing through social media, Social Media Marketing, SEO techniques, Keyword advertising, Google web-master and analytics overview, Affiliate Marketing, Email Marketing, Mobile Marketing	**08**
IV	Display adverting, Buying Models, different type of ad tools, Display advertising terminology, types of display ads, different ad formats, Ad placement techniques, Important ad terminology, Programmatic Digital Advertising.	**08**
Keywords	***Digital Marketing, Technology, Consumer, Buying.***	

PART–C: LearningResources

TextBooks,ReferenceBooksandOthers

TextBooksRecommended–

1. Digital Marketing –Kamat and Kamat-Himalaya
2. Marketing Strategies for Engaging the Digital Generation, D. Ryan,
3. Digital Marketing, V. Ahuja, Oxford University Press
4. Digital Marketing, S.Gupta, McGraw-Hill
5. Quick win Digital Marketing, H. Annmarie , A. Joanna, Paperback edition

OnlineResources–

- **https://www.thinkwithgoogle.com/**

OnlineResources–

- **https://www.coursera.org/socialmediamarketing**
- **https://academy.hubspot.com/courses/social-media**

PART-D:AssessmentandEvaluation		
Suggested Continuous Evaluation Methods: **MaximumMarks:** **ContinuousInternalAssessment(CIA):** **50Marks** **15Marks** **End SemesterExam(ESE):** **35Marks**		
Continuous InternalAssessment(CIA): **(ByCourseTeacher)**	Internal Test / Quiz-(2):**10** & **10**Assignment/Seminar +Attendance - **05**Total Marks - **15**	Bettermarksout ofthetwoTest/ Quiz +obtainedmarksinAssignmentshallbeconsideredagainst**15**Marks
End SemesterExam(ESE):	**Twosection– A &B** SectionA:**Q1**. Objective–**05 x1=05** Mark;**Q2**. Short answertype-**5x2 =10Marks** SectionB:Descriptiveanswer typeqts.,**1outof2** fromeachunit-**4x05=20Marks**	

NameandSignature ofConvener&Members ofCBoS:

GOES TO 04TH SEMESTER

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

COURSE CURRICULUM

PART A: INTRODUCTION			
Program: Certificate Course		**Semester- I Sem**	**Session: 2024-25**
1	**Course Code**	**AEC 01**	
2	**Course Title**	**Environmental Studies**	
3	**Course Type**	**Ability Enhancement Course (AEC)**	
4	**Prerequisite (If Any)**	**As per requirement**	
5	**Course Outcome (CO)**	**At the end of this course, students will be able to –** **CO 01:** relate the basic concept of the environment **CO 02:** explain environmental alterations **CO 03:** develop skills in environmental measurement **CO 04:** examine correction measures of the environment	
6	**Credit Value**	**02 C**	**01 Credit = 15 Hrs. Teaching-Learning**
7	**Total Marks**	**Max. Marks: 50**	**Minimum Pass marks: 20**

PART: B CONTENT OF THE COURSE

Total No. of Teaching-Learning Periods: 30Hours/ 30Periods

UNIT	TOPIC (Course Contents)	No. of Hours
I	**Basic Composition:** 1. Abiotic and Biotic components of the environment 2. Biodiversity—Concept, types, and measures about its protection 3. Basic concept of Bio-Geo Chemical Cycle 4. Energy Flow in an ecosystem	**07**
II	**Alterations in Environment:** 1. Concept and components of the pond ecosystem 2. Air pollution and measures for its control 3. Water pollution and measures for its control 4. Global warming, Climate change, and possible measures	**07**
III	**Measurements of Environmental Components** 1. Soil composition and methods of its analysis 2. Water analysis methods for DO, BOD, COD 3. Water analysis methods for pH, TDS, Turbidity, Salinity, and Alkalinity 4. Information about environmental factors—PM-10, PM-2.5, NO2, O3	**08**
IV	**Application Measures** 1. Useful microbes to control water pollution 2. Useful microbes to control soil pollution 3. Concept of Biodegradation 4. Concept of Phytoremediation	**08**
Key Words	**Ecosystem, Pollution, Climate Change, Biodegradation**	

Name and Signature of Convener and Members of CBOS

Dr. Ujjwala Sayde

Dr. Shubha Diwan 11/6/24

(Dr. Keshav Kant Shahi)

Dr. Pramod Maurya

Sanjaan 11/06/24

(Dr. Sanjaan Bhagat)

Neha Behar (11/6/24)

(Dr. Neha Behar)

Shivthar 11/6/24

Dr. Shivani Sha

Amrita Panda 11/6/2024

(Dr. Amrita Panda)

PART–C: Learning Resources

Text Books, Reference Books, and Others

Text Books Recommended –

1. *Ecology and Environment, 8th Edition, P.D.Sharma, Rastogi Publication, Meerut.*
2. *Environmental Biology, 2nd Edition, P,D.Sharma, Rastogi Publication, Meerut.*
3. *Environmental Biology and Toxicology, 2nd Edition, P.D.Sharma, Rastogi Publication, Meerut.*
4. *Environmental Studies, 1st Edition, S.V.S.Rana, Rastogi Publication, Meerut.*
5. *Environmental Biotechnology, 1st Edition, S. V. S. Rana, Rastogi Publication, Meerut.*

Online Resources–

- **e-Resources / e-books and e-learning portals**

Online Resources–

- **e-Resources / e-books and e-learning portals**

PART -D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

Maximum Marks:	**50 Marks**
Continuous Internal Assessment (CIA):	**15 Marks**
End Semester Exam (ESE):	**35 Marks**

Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): **10 & 10** Assignment/Seminar +Attendance - **05** Total Marks - **15**	Better marks out of the two Test / Quiz + obtained marks in Assignment shall be considered against **15** Marks
End Semester Exam (ESE):	**Two sections – A & B** Section **A**: **Q1**. Objective – **05 x1= 05** Mark; **Q2**. Short answer type- **5x2 =10 Marks** Section **B**: Descriptive answer type qts.,**1out of 2** from each unit- **4x05 =20 Marks**	

Name and Signature of Convener & Members of CBoS:

Sanjana 11/06/24
(Dr. Sanjana Bhargat)

Shivani Sharma 11/6/24
(Dr. Shivani Sharma)

11.6.24
Dr. Vijayalaxmi

Diwan 11/06/24
(Dr. Shubha Diwan)

Neha Behar 11/6/24
(Dr. Neha Behar)

Amrita Panda
(Dr. Amrita Panda)
11.6.2024

Dr. Pramod Kumar Malviya

(Dr. Anuj Kr Kanojia)