Govt. Digvijay Autonomous PG College Rajnandgaon(CG)

SCHEME OF EXAMINATION & SYLLABUS

FOR

THE FOUR-YEAR UNDERGRADUATE PROGRAMME

(FYUGP)

BACHELOR OF COMPUTER APPLICATION
(BCA- 3RD & 4TH) SEMESTER EXAM

UNDER

DEPARTMENT OF COMPUTER APPLICATION

SESSION – 2025-26

(APPROVED BY BOARD OF STUDIES)

Govt. Digvijay Autonomous PG College , Rajnandgaon(CG)

Department of Computer Application

Session – 2025 -26

List of Members of Board of Studies(BOS)

S.No	Name of Member	Nominee Type	Signature
1	Mrs. Hempushpa	Chairman	
2	Dr. Durga Prasad Rao	VC Nominee	
3	Prof. Gulame Mustafa Ansari	Principal Nominee	
4	Prof. Shailendra Arya	Principal Nominee	
5	Mr. Anshu Ramteke	Adviser Member	
6	Ms. Nadini sahu	Ex-Student	

SYLLABUS AND MARKING SCHEME
Session – 2025-26
BCA- III Semester

S. No	Course Type	Course-code	Subject	Credit	Theory Marks	Internal Marks	Total Marks	
							Max	Min
1	DSC	CASC – 07	Software engineering	4	70	30	100	40
2		CASC – 08 T	Relational database Management system	3	70	30	100	40
		CASC – 08 P	Lab 5 : Relational database Management system (Oracle/My SQL)	1	35	15	50	20
3		CASC – 09 T	Programming in java	3	70	30	100	40
4		CASC – 09 P	Lab 6 : Programming in java	1	35	15	50	20
5	DSE	CASE – 01	Cyber security and cyber Law	4	70	30	100	40
TOTAL				20	-	-	600	-

BCA- IV Semester

S. No	Course Type	Course-code	Subject	Credit	Theory Marks	Internal Marks	Total Marks	
							Max	Min
1	DSC	CASC – 10	Theory of computation	4	70	30	100	40
2		CASC – 11 T	Web Technology	3	70	30	100	40
		CASC – 11 P	Lab 7 :Web Technology	1	35	15	50	20
3		CASC – 12 T	Python programming	3	70	30	100	40
4		CASC – 12 P	Lab 8 : Python programming	1	35	15	50	20
5	DSE	CASE – 02	Artificial Intelligence and expert system	4	70	30	100	40
6								
7								
TOTAL				20	-	-	600	-

DSC- Discipline Specific Course,
DSE- Discipline Specific Elective
AEC-Ability Enhancement Core Course,
SEC- Skill Enhancement Course,
GE- Generic Elective,
VAC- Value Added course

GOVT. DIGVIJAY AUTONOMOUS PG COLLEGE, RAJNANDGAON.

(SEMESTER-III & IV)

Program Objective(PO)

Po1- To learn the importance of DBMS in the present scenario and about DBMS architecture, SQL to interact with database.

Po2- To provide a professionally guided education in software engineering that prepares agility in solving software

Po3- To provide a comprehensive understanding of Java programming, preparing students for real-world software development challenges.

Po4 To provide students with a foundational understanding of computational models and their limitations.

Po5- Primary objectives of Cyber security focuses on protecting systems, networks, and data from cyber threats.

PO6- understanding of the fundamentals of the Internet, World Wide Web, and web design principles.

PO7- To introduce students to the syntax and semantics of Python, enabling them to write and execute Python scripts effectively.

PO8- To impart foundational knowledge about Artificial Intelligence (AI), including its concepts, history, and various subfields such as machine learning, neural networks, and natural language processing.

Program Specific Outcome (PSO)

PSO1-Student able to learn about the database concept, Architecture, various users data model and data management

PSO2- Student should be able to Create user defined class interface and packages which help them to develop new application software and utility software

PSO3- Understand the fundamental concepts in cyber security and distinguish among the attacks, threats and vulnerabilities.

PSO4- Understanding and analyzing the fundamentals of compiler designing.

PSO5- Create a web page using HTML, CSS, JAVASCRIPT, XHTML.

PSO6- Understand the Programming Logics in Artificial Intelligence.

PSO7- In python programming, Determine the need for scraping websites and working with CSV, JSON and other file format.

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

PART- A: Introduction

Program: Bachelor in Computer Application *(Certificate / Diploma / Degree Honours)*			**Semester** -IV	**Session** 2024-2025 / 25-26
1	**Course Code**	**CASC-10**		
2	**Course Title**	**Theory of Computation**		
3	**Course Type**	**DSC (Discipline Specific Course)**		
4	**Prerequisite**	*As per program*		
5	**Course Learning Outcomes (CLO)**	At the end of this course, the students will be able to • Understanding of the language compiler and their associated phases. • Understanding of the core concepts in automata theory and formal languages • Understanding and analyzing the fundamentals of compiler designing. • Design grammars and automata (recognizers) for different language classes • Design the pushdown automata and Turing machine.		
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	**Introduction to Language Compiler:** What is a compiler, phases of a compiler, the role of lexical analyzer, specification of tokens, recognition of tokens; different types of parsers; types of grammars, and their associated language in theory of computation. **Finite Automata:** Introduction to Finite State Automata (FSA): Formal definition, Representation notations (state transition diagram, transition table). Types of FSA: Deterministic Finite Automata (DFA), Nondeterministic Finite Automata (NFA), Finite Automata with Epsilon Transitions, Elimination of Epsilon transitions, Conversion of NFA to DFA, Equivalence of NFA and DFA. Applications of Finite Automata, Minimization of Deterministic Finite Automata. Mealy machine, Moore machine.	15
II	**Regular Expressions:** Introduction to RE, Identities of Regular Expressions, Finite Automata and Regular Expressions- Converting from DFA to Regular Expressions, Converting Regular Expressions to Automata, Applications of Regular Expressions. **Regular Grammars**: Definition, Regular grammar, and FA, FA for regular grammar, Regular grammar for FA. Proving languages to be non-regular -Pumping lemma, applications, Closure properties of regular languages.	15
III	**Context Free Grammar:** Introduction to CFGs, Properties of CFGs, Derivation Trees, Sentential Forms, Rightmost and Leftmost derivations of Strings. Ambiguity in CFG, Minimization of CFG, Chomsky Normal Form (CNF), Greibach Normal Form (GNF), Pumping Lemma for CFLs. **Pushdown Automata:** Introduction of PDA and its model, types of PDA, Languages accepted by the PDA, Acceptance by Final State and Acceptance by Empty stack and its Equivalence, Equivalence of CFG and PDA.	15
IV	**Turing Machines:** Formal definition and model of Turing Machine, Types of TMs, Languages of a TM, TM as acceptors, Properties of recursive and recursively enumerable languages, Universal Turing machine, The Halting problem, Undecidable problems about TMs. Context-sensitive language and linear bounded automata (LBA).	15
Keywords	*Language compiler, grammar, and their associated language, Finite Automata, Regular Expression, Regular Grammar, Context Grammar, and Turing Machine.*	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

AINJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- John E. Hopcroft, Rajeev Motwani, Jeffrey D. Ullman (2007), Introduction to Automata Theory Languages and Computation, 3rd edition, Pearson Education, India
- K. L. P Mishra, N. Chandrasekaran (2003), Theory of Computer Science-Automata Languages and Computation, 2nd edition, Prentice Hall of India, India
- Tools Alfred V. Aho, Ravi Sethi, D. Jeffrey Ullman and Monica S. Lam , Compilers Principles, Techniques and Tools, Addison Wesley

Reference Books Recommended:

- A.M. Padma Reddy, Finite Automata and Formal languages, Pearson Education India
- Michael Sipser, Third Edition, Introduction to the Theory of Computation, Cengage Learning

Online Resources:

- NPTEL YouTube Channel: Lectures on Theory of Computation https://youtube.com/playlist?list=PLbMVogVj5nJSd25WnSU144ZyGmsqjuKr3&si=EvuSjnO_TT1oTHjn
- NPTEL YouTube Channel: Lectures on Theory of Automata, Formal Languages and Computation https://youtube.com/playlist?list=PL85CF9F4A047C7BF7&si=SBm-gIkmkjOBDscB
- NPTEL YouTube Channel: Lectures on Theory of Computation and Automata https://youtube.com/playlist?list=PL3-wYxbt4yCgBHUpwXDTLos3JSteeGfax&si=TbYH91hmlOrtUEnN
- SWAYAM YouTube Channel: Introduction to Automata, Languages and Computations https://youtube.com/playlist?list=PLbRMhDVUMngcwWkzVTm_kFH6JW4JCtAUM&si=RbTG3WZ0Jf6Zx_pu
- NPTEL YouTube Channel: https://www.youtube.com/watch?v=_ck1Lnm28hQ&list=PLbRMhDVUMngcseCW7wXDvtTDemCuI180tP

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. Saha) (Dr. Dinesh Sharma) (Dr. S. Jain) (Sushil Kumar Saha) (Sivaram Thakur) K Khuntey ANJEETA KUTUR

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 - IV	Session: 2024-2025, 25-26
1	Course Code	CASC-11T	
2	Course Title	Web Technology	
3	Course Type	DSC (Discipline Specific Course)	
4	Prerequisite	*As per program*	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Analyze a web page and identify its elements and attributes. • Create web pages using HTML, CSS, JAVASCRIPT, XHTML • Build dynamic web pages using JavaScript (Client-side programming) • Create XML documents and Schemas. • Build interactive web applications using PHP, AJAX. • Handling MySQL Database using PHP.	
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	**Introduction:** Fundamentals of web technology: Webpages, website, browser, client, web servers, Basics of HTML CSS, Scripting Languages, MySQL, PHP etc., protocols governing the web, Web applications. Web Publishing: Introduction, Domain Name Registration, choosing a web host and signing up for an Account, web hosting. IDE for web development.	12
II	**HTML:** Introduction, Basic formatting tags: heading, paragraph, line break, bold, italic, underline, superscript, subscript, font and image. Different attributes like align, color, bgcolor, font face, border, size, Navigation Links using anchor tag: internal, external, mail and image links, Link to different web pages and sections. Lists: ordered, unordered and definition, Table tag, image tag, iframe tag. HTML Form controls: form, text, password, text area, button, checkbox, radio button, select box, hidden controls, Frameset and frames. Basics of DHTML, introduction of XML and its uses. Introduction of AJAX.	11
III	**CSS and Scripting Languages:** Introduction and features of CSS, CSS syntax, Creating Style sheets, CSS selectors (simple selector, combinator selectors, pseudo-class-selectors, pseudo-element-selectors, attribute selector), different ways to insert the CSS, different styling attributes and their settings like color, background, font, text, margin, position, border etc. **JavaScript:** introduction and features of java script, Syntax & Conventions, Variables, Expression, Branching & Looping, Function, Array, Objects, Events and Document Object model, Alerts, prompts and conforms.	11
IV	**PHP:** Introduction and features of PHP, data types, operators, control statements and looping, functions, array, string and string functions, object oriented, programming features of PHP: class-objects, abstraction, encapsulation, constructor, destructor, inheritance, polymorphism etc., Exception Handling. Handling HTML forms with PHP, Working with files and directories, session and cookies, PHP functions for Database Connectivity and basic operation with MySQL.	11

Keywords: Webpage, Website, HTML, AJAX, CSS, JavaScript, PHP, MySQL.

Name and Signature of Convener & Members of CBoS:

Dr. B.S Hota (Chairman) Dr. K. B. Dubey (Dr S K Sahu) (Dr. S. Jain) R. Khuntia ANJEETA KUJ

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Xavier, C, Web Technology and Design, New Age International.
- Ivan Bayross, HTML, DHTML, Java Script, Perl & CGI, BPB Publication.
- Ramesh Bangia, Internet and Web Design, New Age International.
- Ullman, PHP for the Web Visual QuickStart Guide, Pearson Education.

Reference Books Recommended:

- Jim Converse & Joyce Park, PHP & MySQL Bible, Wiley India Publication
- Chuck Musiano & Bill Kenndy, O Reilly, HTML The Definitive Guide
- Joseph Schmuller, Dynamic HTML, BPB, 2000.
- Deitel, Deitel, Goldberg, Internet & World Wide Web How to Program,Pearson Education,
- Raj Kamal, Internet and Web Technologies, Tata McGraw-Hill.

Online Resources:

- Swayam Portal : Web technology: Web Technology - Course (swayam2.ac.in)
- W3schools: Web development Programming and Scripting Languages https://www.w3schools.com
- Fundamentals of PHP: PHP Tutorial (tutorialspoint.com)
- IIT Kharagpur YouTube Link: Database and SQL https://youtube.com/playlist?list=PLIwC9bZ0rmjSkm1VRJROX4vP2YMIf4Ebh&si=Z5JJIgtFMUWTfNtg
- NPTEL: SQL https://youtube.com/playlist?list=PLLQPlumE5cEgzU5hChH1V3H93x4UOIHR&si=2dxqvodFZcnQUudR

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 SKSahu) (Dr. Anil Sharma) (Dr. S. Jain) R. Khuntey (Sushil Kumar Sahu) (Suresh Thakur) 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 – IV	Session: 2024-2025, 25-26
1	Course Code	CASC-11P	
2	Course Title	Lab 7: Web Technology	
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: • Analyze a web page and identify its elements and attributes. • Create web pages using HTML, CSS, JAVASCRIPT, XHTML. • Build dynamic web pages using JavaScript (Client-side programming) • Create XML documents and Schemas. • Build interactive web applications using PHP, AJAX. • Handling MySQL Database using PHP.	
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	**HTML** 1. Write HTML code to create the following table:	30

Class	Subject 1	Subject 2	Subject 3
BCA-I	Visual Basic	PC Software	Electronics
BCA-II	C++	DBMS	English
BCA-III	Java	Multimedia	CSA

2. Write HTML code to create the following lists:
   - C
   - C++
   - Fortran
   - COBOL
3. Write HTML code to create the following lists:
   1. Java
   2. Visual Basic
   3. Basic
   4. COBOL
4. Write HTML code to demonstrate hyper linking between two web pages.
5. Create a marquee & also insert an image.
6. Write HTML code to create a frame in HTML with 3 columns (width= 30%, 30%, 40%) and put hyperlinked pictures inside each.
7. Write HTML code to create a webpage with a blue background and print the following text with white background.
   "Hello Word "
8. Write HTML code to create the following table:

Course	OC	BC	MB	SC/ST	Total

Computer Science	**9**	**18**	**5**	**5**	**37**
Commerce	**14**	**25**	**6**	**5**	**50**
Grand Total					**87**

9. Write HTML code to create the following table:

Maruti		**Tata**		**Ford**	
Model	**Price**	**Model**	**Price**	**Model**	**Price**
Maruti 800	2 Lac	Sumo	2 Lac	Icon	5 Lac
Omni	3 Lac	Scorpio	3 Lac	Gen	2 Lac

10. Write HTML code to create the following table:

Pandit Ravishankar Shukla University		
Name	**Roll No.**	**Class**
Rahul	40	BCA-I
Preeti	85	BCA-I
Priya	74	BCA-I
Richa	95	BCA-I

11. Write HTML code to create the following table:

Students Record

Name	**Subject**	**Marks**
Arun	Java	70
	C	80
Ashish	Java	75
	C	69

12. Write HTML code to create the following table and also insert an image in the webpage.

Subject	**Max**	**Min**	**Obtain**
Java	100	33	75
Multimedia	100	33	70
Operating System	100	33	68
C++	100	33	73

13. Write HTML code to create the following table:

Name		Rahul	
Roll No.		101	
Subject	**Max**	**Min**	**Obtain**
Java	100	33	75
Multimedia	100	33	70

14. Write HTML code to create a form as the following:

Enter Name :
Enter Roll No :
Enter Age :
Enter DOB :

15. Write HTML code to create the following form:

User Name :

Password :

When user types characters in a password field. The browser displays asterisks or bullets instead of character

Submit

16. Write HTML code to create Student Registration Form
17. Write HTML code to create Contact Form
18. Write HTML code to insert Audio & Video in HTML
19. Write HTML code for the following equations:

$C_2H_5OH+PCL_5=C_2H_5CL+POCL_3+HCL$

$4H_3PO_3=3H_3PO_4+PH_3$

$PCL_3+CL_2=PCL_5$

20. Write the HTML code to display the following list:
    - Actors
        - Bruce Wills
        - Gerand Butler
        - Vin Diesel
        - Bradd Pitt
        - Paul Walker
        - Jason Statham
    - Actress
        - Julia Roberts
        - Angelina Jolie
        - Kate Wins let
        - Cameron Diaz
21. Write the HTML code to display the following list:
    1. Cricket Players
        A. Batsman
            i. Sachin Tendulkar
            ii. Rahul Dravid
            iii. Virendra Sehwag
        B. Bowlers
            i. Kumble
            ii. Zaheer Khan
            iii. Balaji
        C. Spinner
            i. Harbhajan
            ii. Ravindra Jadeja
            iii. Kartik

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JavaScript

1. Write a java script, to print prime numbers from 1 and 50.
2. Write a script to get the largest value in an array.
3. Write a function to calculate the factorial of a number (a non-negative integer).
4. Write a script to demonstrate data validation.
5. Write a program to print dates using JavaScript.
6. Write a program to Sum and Multiply two numbers using JavaScript.

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DHTML

1. Create a web page which shows the changes of header dynamically.

2. Create a webpage which explains the use of relative positioning.
3. Display an alert box to alert the x and y coordinates of the cursor

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PHP

1. write script using for loop to print all integer between -10 to 10
2. write script to construct the following pattern, using nested for loop

```
1
1  2
1  2  3
1  2  3  4  5
```

3. Write a PHP script to get the largest key in an array.
4. Write a function to calculate the factorial of a number (a non-negative integer).
5. Write a PHP script to check string for palindrome.
6. Write a PHP script to collect the data from the registration form designed in HTML, and submit it to the database.
7. Write a PHP script to read the data from the database and display it into the web page in tabular form.

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MySQL

Task - I

Create the following table in MySQL:

College (cname, city, caddress, cphone)
Staffjoins (sid, cname, dept, doj, post, salary)
Staffs (sid, sname, saddress , scontacts)
Teaching (sid, class, paprid, fsession, tsession)
Subject (paperid, subject, paper, papername)

Write the queries to perform the following operations.

1. List the name and post of a teacher teaching a computer subject.
2. List the name and city of all staff working in your college.
3. List the name and city of all staff working in your college who earn more than 15000.
4. Find the staff whose date of joining is 2005.
5. Find the staff whose names start with 'M' or 'R' and 'A' and/or 7 characters long.
6. Modify the database so that staffN1 now works in C2 college.
7. List maximum, average, minimum salary of each college.
8. Acquire details of staff by name in a college or each college.
9. List names of staff in ascending order according to salary who are working in all colleges.
10. Find the staff that earn a higher salary who earn greater than the average salary of their college.

Task - II

Create the following table MySQL:
Enrollment (enrollno, name, gender, DOB, address, phone)
Admission (adno, enrollno, course, yearsem, date, cname)
Feestucture (course_yearsem, fee)
Payment (billno, admno, amount, pdate,purpose)

Write the queries to perform the following operations.

1. Get full detail of all students who took admission this year class wise.
2. Get details of students who took admission in sai colleges.
3. Calculate the total amount of fees collected in this session.
4. List the students who have not paid full fees in your colleges.
5. List the number of admission in your college every year.
6. List the students in colleges in your city and also live in your city.

Task - III

Create the following table MySQL:
Subject (paperid, subject, paper, papername)
test(paperid,tdate,max,min)
score(rollno,paperid,marks,attendance)
students(admno,rollno,class,yearsem)

Write the queries to perform the following operations.

1. List roll no of students who were present in a paper of a subject.
2. List all roll numbers who have passed in first division.
3. List all students in BCA-II who have scored higher than average in your college.

Note: Concerned teacher can add additional practical exercises as per requirement.

Keywords	*HTML, Hyperlinks, Form, List, Table, CSS, JavaScript, MySQL, PHP.*

Name and Signature of Convener & Members of CBoS:

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Xavier, C, Web Technology and Design, New Age International.
- Ivan Bayross, HTML, DHTML, Java Script, Perl & CGI, BPB Publication.
- Ramesh Bangia, Internet and Web Design, New Age International.
- Ullman, PHP for the Web: Visual QuickStart Guide, Pearson Education.

Reference Books Recommended:

- Jim Converse & Joyce Park, PHP & MySQL Bible, Wiley India Publication
- Chuck Musiano & Bill Kenndy, O Reilly, HTML The Definitive Guide
- Joseph Schmuller, Dynamic HTML, BPB, 2000.
- Deitel, Deitel, Goldberg, Internet & World Wide Web How to Program,Pearson Education,
- Raj Kamal, Internet and Web Technologies, Tata McGraw-Hill.

Online Resources:

- Swayam Portal : Web technology: Web Technology - Course (swayam2.ac.in)
- W3schools: Web development Programming and Scripting Languages https://www.w3schools.com

- Fundamentals of PHP: PHP Tutorial (tutorialspoint.com)
- IIT Kharagpur YouTube Link: Database and SQL
  https://youtube.com/playlist?list=PLIwC9bZ0rmjSkm1VRJROX4vP2YMIf4Fbh&si=Z5JJIgtFMUWTfNtg
- NPTEL: SQL
  https://youtube.com/playlist?list=PLLQPlumE5cEgzU5hChH1V3H93x4UOlHR&si=2dxqvodFZcnQUudR

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 of CBoS:

Dr. H S Hota
Chairman
Dr. K. B. Dubey
(DoSK Satya)
(Dr. S Jain)
(Dr. Anil Sharma)
R. Khanday
(Sushil Kumar Sahu)
Shailendra Singh
ANUGEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

DEPARTMENT OF COMPUTER APPLICATION

COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Computer Application **Semester - IV** Session: 2024-2025 25-26

(Certificate / Diploma / Degree/Honors)

1	Course Code	CASC-12T
2	Course Title	Python **Programming**
3	Course Type	**DSC (Discipline Specific Course)**
4	Prerequisite	*As per Program*
5	**Course Learning Outcomes (CLO)**	At the end of this course, the students will be able to: • Define the structure and components of a Python program • Demonstrate proficiency in handling of loops and creation of functions. Identify the methods to create and manipulate lists, tuples and dictionaries • Discover the commonly used operations involving regular expressions and file system • Determine the need for scraping websites and working with CSV, JSON and other file formats • Interpret the concepts of Object-Oriented Programming as used in Python
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	**Introduction to Python Programming**: What is a Program, Formal and Natural Languages, Why use Python, Uses of python, Strengths & Drawbacks, The Python Interpreter, Running Python, The IDLE User Interface, The Interactive Prompt, Script Mode, Dynamic Typing, Debugging. **Types, Operators, Expressions & Statements**: Values and Types, Assignment Statement, Variable Names, Expressions & Statements, Order of Operations, String Operations, Comments	10
II	**Conditionals**: Boolean Expressions, Logical operators, Conditional & Alternative Execution, Chained and Nested Conditions. **Iterations**: Reassignment, Updating Variables, The "for" and "while" statements, break. **Strings**: String is a sequence, len, Traversal with a for loop, String Slices, Searching, Looping and Counting, String Methods, the "in" operator, String Comparison.	10
III	**Lists, Tuples, and Dictionaries;** Basic list Operators, replacing, inserting, removing an element, searching and sorting lists, Accessing tuples, Operations, Working, Functions and Methods, dictionary literals, adding and removing keys, accessing and replacing values, Traversing Dictionaries.	10
IV	**Function, Files and Graphics:** Defining a function, calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables, **Files**: Files & Persistence, Reading and Writing, Filenames and Paths **Graphics programming**: Drawing with turtle graphics, using turtle module, moving the turtle with any direction, moving turtle to any location, the color, bgcolor, circle and speed method of turtle, drawing with colors, drawing basic shapes using iterations. **Python Libraries:** Exploring python libraries like Panda, Numpy, TensorFlow, Scikit-Learn, Keras, PyTorch, SciPy etc.	15

Keywords: *List, Tuple, Dictionary, Panda, Numpy, TensorFlow, Scikit-Learn, Keras, PyTorch, SciPy.*

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota Chairman Dr. K.B. Dubey (Dr S K Sahu) (Dr Arvind Sharma) (Dr S Jain) R. Khandey (Sushil Kumar Sahu) (Suresh Thakur) ANJEETA KU

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 - IV	Session: 2024-2025 / 25-26
1	Course Code	CASC-12T	
2	Course Title	Python Programming	
3	Course Type	DSC (Discipline Specific Course)	
4	Prerequisite	*As per Program*	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Define the structure and components of a Python program. • Demonstrate proficiency in handling of loops and creation of functions. Identify the methods to create and manipulate lists, tuples and dictionaries. • Discover the commonly used operations involving regular expressions and file system. • Determine the need for scraping websites and working with CSV, JSON and other file formats. • Interpret the concepts of Object-Oriented Programming as used in Python.	
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	**Introduction to Python Programming**: What is a Program, Formal and Natural Languages, Why use Python, Uses of python, Strengths & Drawbacks, The Python Interpreter, Running Python, The IDLE User Interface, The Interactive Prompt, Script Mode, Dynamic Typing , Debugging. **Types, Operators, Expressions & Statements**: Values and Types. Assignment Statement, Variable Names, Expressions & Statements, Order of Operations, String Operations, Comments.	10
II	**Conditionals**: Boolean Expressions, Logical operators, Conditional & Alternative Execution, Chained and Nested Conditions. **Iterations**: Reassignment, Updating Variables, The "for" and "while" statements, break. **Strings**: String is a sequence, len, Traversal with a for loop, String Slices, Searching, Looping and Counting, String Methods, the "in" operator, String Comparison.	10
III	**Lists, Tuples, and Dictionaries;** Basic list Operators, replacing, inserting, removing an element, searching and sorting lists, Accessing tuples, Operations, Working, Functions and Methods, dictionary literals, adding and removing keys, accessing and replacing values, Traversing Dictionaries.	10
IV	**Function, Files and Graphics:** Defining a function, calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables, **Files**: Files & Persistence, Reading and Writing, Filenames and Paths.**Graphics programming**: Drawing with turtle graphics, using turtle module, moving the turtle with any direction, moving turtle to any location, the color, bgcolor, circle and speed method of turtle, drawing with colors, drawing basic shapes using iterations. **Python Libraries:** Exploring python libraries like Panda, Numpy, TensorFlow, Scikit-Learn, Keras, PyTorch, SciPy etc.	15

Keywords: List, Tuple, Dictionary, Panda, Numpy, TensorFlow, Scikit-Learn, Keras, PyTorch, SciPy.

Name and Signature of Convener & Members of CBoS:

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

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- T. Budd, Exploring Python, TMH, 1st Ed, 2011
- Allen Downey, Jeffrey Elkner, Chris Meyers, How to think like a computer scientist: Learning with Pyth,Freelyavailableonline.2012

Reference Books Recommended:

- Luca Massaron John Paul Mueller, Python for Data Science For Dummies, Wiley, 2ed. 2019
- Allen B. Downey, Think Python: How to Think Like a Computer Scientist, 2nd edition by O'Reilly, 2015
- Zed A. Shaw, Learn Python 3 the Hard Way (Addison-Wesley, 2016)

Online Resources:

- NPTEL URL link for Python Programming: https://www.youtube.com/watch?v=eoPsX7MKfe8&list=PLIdgECt554OVFKXRpo_kul0XpUQKk0ycO
- Complete NPTEL link for Basic Python Programming: https://www.youtube.com/watch?v=Y3Ri2GdYfYg&list=PLqftY2uRk7oXvERQEgATSr-KzAh8WLW_D
- File Handling: https://www.w3schools.com/python/python_file_handling.asp
- NumPy: https://www.w3schools.com/python/numpy/default.asp
- Pandas: https://www.w3schools.com/python/pandas/default.asp
- SciPy: https://www.w3schools.com/python/scipy/index.php
- Django: https://www.w3schools.com/django/index.php
- Matplotlib: https://www.w3schools.com/python/matplotlib_intro.asp
- Machine Learning: https://www.w3schools.com/python/python_ml_getting_started.asp
- Python MySQL: https://www.w3schools.com/python/python_mysql_getstarted.asp
- Topics related Python from SWAYAM/NPTEL
  https://www.youtube.com/channel/UCxu1cR5XRauYn37yg-Fh6rA
  https://www.youtube.com/channel/UCJAgw1niUkaShdmA5aAZdQw
- Topics related Python from Tutorials
  - https://www.javatpoint.com/python-tutorial
  - http://docs.python.org/3/tutorial/index.html
  - http://interactivepython.org/courselib/static/pythonds
  - http://www.ibiblio.org/g2swap/byteofpython/read/
- Python for Beginners:
  - https://www.w3schools.com/python/python_intro.asp
  - https://www.python.org/about/gettingstarted/
  - https://www.javatpoint.com/python-tutorial
  - https://www.geeksforgeeks.org/python-programming-language/

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. Dubay

(Dr. S.K. Sahu)

(Dr. Sushil Kumar Sahu)

Dr. Suresh Thakur

(Dr. Amit Sharma)

Dr. S. Jain

Dr. A.S.S.

R. Chaudhary

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 - IV**	Session: 2024-2025, 25-26
1	**Course Code**	CASC-12P		
2	**Course Title**	**Lab 8: Python Programming**		
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: • Define the structure and components of a Python program. • Demonstrate proficiency in handling of loops and creation of functions Identify the methods to create and manipulate lists, tuples and dictionaries • Discover the commonly used operations involving regular expressions and file system. • Determine the need for scraping websites and working with CSV, JSON and other file formats. • Interpret the concepts of Object-Oriented Programming as used in Python.		
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	**Note:** This is tentative list; the teachers concern can add more program as per requirement. 1. Python program to find the union of two lists. 2. Python program to find the intersection of two lists. 3. Using for loop, print a table of Celsius/Fahrenheit equivalences. Let c be the Celsius temperatures ranging from 0 to 100, for each value of c, print the corresponding Fahrenheit temperature. 4. Using while loop, produce a table of sins, cosines and tangents. Make a variable x in range from 0 to 10 in steps of 0.2. For each value of x, print the value of sin(x), cos(x) and tan(x). 5. Write a program that reads an integer value and prints —leap yearl or —not a leap yearl. 6. Write a program that takes a positive integer n and then produces n lines of output shown as follows. For example, enter a size: 5 * ** *** **** ***** 7. Write a function that takes an integer _n'as input and calculates the value of 1 + 1/1! + 1/2! + 1/3! + ... + 1/n	30

8. Write a function that takes an integer input and calculates the factorial of that number.
9. Write a function that takes a string input and checks if it's a palindrome or not.
10. Write a list function to convert a string into a list, as in list ('abc') gives [a, b, c].
11. Write a program to generate Fibonacci series.
12. Write a program to check whether the input number is even or odd.
13. Write a program to compare three numbers and print the largest one.
14. Write a program to print factors of a given number.
15. Write a method to calculate GCD of two numbers.
16. Write a program to create Stack Class and implement all its methods. (Use Lists).
17. Write a program to create Queue Class and implement all its methods. (Use Lists)
18. Write a program to implement linear and binary search on lists.
19. Write a program to sort a list using insertion sort and bubble sort.
20. Python program to remove the "i" th occurrence of the given word in a list where words repeat.
21. Python program to count the occurrences of each word in a given string sentence.
22. Python program to check if a substring is present in a given string.
23. Python program to map two lists into a dictionary.
24. Python program to count the frequency of words appearing in a string using a dictionary.
25. Python program to create a dictionary with key as first character and value as words starting with that character.
26. Python program to find the length of a list using recursion.
27. Python program to read a file and capitalize the first letter of every word in the file.
28. Python program to read the contents of a file in reverse order.
29. Python program to create a class in which one method accepts a string from the user and another prints it.
30. Study and Implementation of Database, Structured Query Language and database connectivity.

Keywords	*List, Tuple, Dictionary, Panda, Numpy, TensorFlow, Scikit-Learn, Keras, PyTorch, SciPy.*

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota (Chairman), (Dr. S. Jain), R. Khuntia, ANJEETA KUJUR

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- T. Budd, Exploring Python, TMH, 1st Ed, 2011
- Allen Downey, Jeffrey Elkner, Chris Meyers, How to think like a computer scientist: Learning with Pyth,Freelyavailableonline.2012

Reference Books Recommended:

- Luca Massaron John Paul Mueller, Python for Data Science For Dummies, Wiley, 2ed, 2019

- Allen B. Downey, Think Python: How to Think Like a Computer Scientist, 2nd edition by O'Reilly, 2015
- Zed A. Shaw, Learn Python 3 the Hard Way (Addison-Wesley, 2016)

Online Resources:

- NPTEL URL link for Python Programming: https://www.youtube.com/watch?v=eoPsX7MKfc8&list=PLIdgECt554OVFKXRpo_kuf0XpUQKk0ycO
- Complete NPTEL link for Basic Python Programming: https://www.youtube.com/watch?v=Y3Ri2GdYfYg&list=PLqftY2uRk7oXvERQEgATSr-KzAh8WLW_D
- File Handling: https://www.w3schools.com/python/python_file_handling.asp
- NumPy: https://www.w3schools.com/python/numpy/default.asp
- Pandas: https://www.w3schools.com/python/pandas/default.asp
- SciPy: https://www.w3schools.com/python/scipy/index.php
- Django: https://www.w3schools.com/django/index.php
- Matplotlib: https://www.w3schools.com/python/matplotlib_intro.asp
- Machine Learning: https://www.w3schools.com/python/python_ml_getting_started.asp
- Python MySQL: https://www.w3schools.com/python/python_mysql_getstarted.asp
- Topics related Python from SWAYAM/NPTEL
  - https://www.youtube.com/channel/UCxu1cR5XRauYn37yg-Fh6rA
  - https://www.youtube.com/channel/UCJAgw1niUkaShdmA5aAZdQw
- Topics related Python from Tutorials
  - https://www.javatpoint.com/python-tutorial
  - http://docs.python.org/3/tutorial/index.html
  - http://interactivepython.org/courselib/static/pythonds
  - http://www.ibiblio.org/g2swap/byteofpython/read/

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 of CBoS:

Dr. H. S. Hota
Chairman

Suresh Thakur

ANKITA 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 – IV	Session: 2024-2025, 25-26
1	Course Code	CASE-02		
2	Course Title	**Artificial Intelligence and Expert System**		
3	Course Type	**DSE (Discipline Specific Elective)**		
4	Prerequisite	*As per program*		
5	Course Learning Outcomes(CLO)	At the end of the course, students will be able to: • Understand the Basics about Artificial Intelligence and Expert Systems. • Understand the Programming Logics in Artificial Intelligence. • Understand various search methods in Artificial Intelligence. • Understand the Knowledge about the Expert Systems. • Understand the latest developments in Knowledge systems and Tools.		
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	**Introduction:** History, Definition of AI, Emulation of human cognitive process, knowledge search trade off, stored knowledge, semantic nets. An abstract view of modelling, elementary knowledge. Computational logic, analysis of compound statements using simple logic connectives, predicate logic, knowledge organization and manipulation, knowledge acquisition.	15
II	**AI Programming languages:** LISP and other programming languages- introduction to LISP, syntax and numerical function, LISP and PROLOG distinction, input output and local variables, Interaction and recursion, property list and arrays alternative languages, formalized symbolic logics- properties of WFRS, non-deductive inference methods. Inconsistencies and uncertainties- Truth maintenance systems, default reasoning and closed world assumption, Model and temporary logic.	15
III	**Problems and Heuristic Search Techniques:** Problem Characteristics, Production Systems, Control Strategies, Search techniques: Breadth First, Depth-first search, Hill-climbing, Heuristics Search Techniques: Best First Search, A* algorithm. **Knowledge Representation:** Approaches and Issues, Frame, Conceptual dependency, Semantic Net, Scripts etc., Propositional Logic, First order, Propositional Logic (FOPL), Conversion to clausal form, Inference rules, Resolution principal.	15
IV	**Expert System:** Introduction, Application, Existing Expert systems. Components of typical expert system, Rule based system architecture. **Pattern Recognition:** Pattern recognition system- understanding speech recognition, Image transformation, low level processing, medium and high level processing, vision system architecture.	15

Keywords: *Artificial Intelligence (AI), AI Agent, State Space, Production System, LISP, PROLOG, Knowledge Representation, Semantic Net, Propositional Logic, Expert System.*

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

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PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Dan W. Patterson, Introduction to Artificial Intelligence and Expert Systems, PHI Publication.
- Elaine Rich and Kevin Knight, Artificial Intelligence, TMH publication
- George. F. William. A. Stubblefield, 'Artificial intelligence and the design of expert systems', The Benjamin Cummins Publishing Co., Inc 2nd Edition, 1992.
- V.S. Jankiraman, K. Sarukesi and P. Gopala krishnan, Foundations of Artificial Intelligence and Expert Systems , Macmillan Series in Computer Science.

Reference Books Recommended:

- Vinod Chandra S.S., Anand Hareendrn S., Artificial Intelligence and machine learning, PHI learning private Ltd.
- V.S. Jankiraman, K. Sarukesi and P. Gopala Krishnan, Foundations of Artificial Intelligence and Expert Systems, Macmillan Series in Computer Science
- Russel (Stuart), 'Artificial Intelligence- Modern approach, Pearson Education series in AI', 3rd Edition, 2009.
- Eugene Charniak, Drew Mc Dermot, 'Introduction to Artificial intelligence', Addison Wesley Longman Inc.,2009
- Robert J Schalkoff, 'Artificial intelligence An Engineering Approach', McGraw Hill International Edition, 1990

Online Resources:

- Introduction to Artificial Intelligence from SWAYAM: https://www.youtube.com/watch?v=pKeVMlkFpRc&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=2
- Artificial Intelligence: Knowledge Representation And Reasoning from SWAYAM https://onlinecourses.nptel.ac.in/noc24_cs14/preview
- An introduction to Artificial Intelligence from SWAYAM: https://onlinecourses.nptel.ac.in/noc24_cs08/preview
- Introduction to Artificial Intelligence from Coursera: https://www.coursera.org/learn/introduction-to-ai
- Problem Solving as State Space Search from SWAYAM: https://www.youtube.com/watch?v=fLw8SfvaJWA&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=3
- Heuristic Search from SWAYAM: https://www.youtube.com/watch?v=0awSpFyh2MY&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=5
- Introduction to Artificial Intelligence: https://www.javatpoint.com/artificial-intelligence-ai
- How to Learn Artificial Intelligence from Coursera: https://www.coursera.org/articles/how-to-learn-artificial-intelligence
- What is knowledge representation: https://courses.csail.mit.edu/6.803/pdf/davis.pdf
- Informed Search https://www.youtube.com/watch?v=-R12hOyjZB8&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=6
- Artificial; Intelligence and Expert System:
  - https://sist.sathyabama.ac.in/sist_coursematerial/
  - https://sist.sathyabama.ac.in/sist_coursematerial/uploads/SMRA3003.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 KUJU