FOUR YEAR UNDERGRADUATE PROGRAM (NEP–2020)

Program: Bachelor in Science (2024 -28)

DISCIPLINE – INFORMATION TECHNOLOGY

SESSION – 2024-25

DSC -01 to 08		DSE -01 to 12	
Code	**Title**	**Code**	**Title**
ITSC-01T	Fundamental of IT and MS-Office	ITSE -01	Data Structure
ITSC-01P	**Lab 1**: MS-Office	ITSE -02	Internet and E-Commerce
ITSC-02T	Programming in C++	ITSE -03	Information and Network Security
ITSC-02P	**Lab 2**: Programming in C++	ITSE -04	Introduction to Artificial Intelligence
ITSC-03T	Relational Database Management System	ITSE -05	Computer System Architecture
ITSC-03P	**Lab 3**: Relational Database Management System (Oracle / MySQL)	ITSE -06T	Mobile Application Development
ITSC-04T	Programming in . Net	ITSE -06P	**Lab 8:** Mobile Application Development
ITSC-04P	**Lab 4**: Programming in . Net	ITSE -07	Software Engineering
ITSC-05T	Programming in Java	ITSE -08	Theory of Computation
ITSC-05P	**Lab 5**: Programming in Java	ITSE -09	Soft Computing
ITSC-06T	Web Technology	ITSE -10	Computer Graphics
ITSC-06P	**Lab 6**: Web Technology	ITSE -11	Cloud Computing
ITSC-07T	Programming in Python	ITSE -12	Major Project
ITSC-07P	**Lab 7**: Programming in Python		
ITSC-08T	Fundamental of IoT and Applications		
ITSC-08P	**Lab 9**: Fundamental of IoT and Applications		
DGE -01 & 02		**VAC**	
ITGE -01T	Fundamental of IT and MS-Office	ITVAC-01	Artificial Intelligence
ITGE -01P	**Lab 1**: MS-Office	**SEC**	
ITGE -02T	Programming in C++	ITSEC-01	MS OFFICE
ITGE -02P	**Lab 2**: Programming in C++		

Program Outcomes (PO):

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

Program Specific Outcomes (PSO):

- Understand the basic IT knowledge and practical application in MS Office.
- 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 Dot Net technology with practical implementation.
- 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 internet and E-commerce.
- Understanding the basic concept of information and network security.
- Understanding the basic concept of Artificial Intelligence.

Dr. H.S. Hota
Chairman

(Dr. K.B. Dubey)

(Dr S.K. Sahu)

Durgesh Kotangle

(Dr. Anil Sharma)

Dr Swati Singh

(R. Khuntey)

(Sushil Kumar Sahu)

(Suresh Thakur)

(Dr. Amrita Shukla)

Shailendra Arya

11-06-2024

(Dr. Sanjay Kumar)

Jeetendra Kumar

ANJEETA KUJUR

Curriculum Structure

Scheme

Program: B.Sc.

Discipline: Information Technology

Semester	Course Type	Course Code	Course Title	Total Credit	Total Marks	
					Max	Min
1st Semester	DSC (Major/Core)	ITSC-01T	Fundamental of IT and MS-Office	3	100	40
		ITSC-01P	**Lab 1**: MS-Office	1	50	20
2nd Semester	DSC (Major/Core)	ITSC-02T	Programming in C++	3	100	40
		ITSC-02P	**Lab 2**: Programming in C++	1	50	20
3rd Semester	DSC (Major/Core)	ITSC-03T	Relational Database Management System	3	100	40
		ITSC-03P	**Lab 3**: Relational Database Management System (Oracle/MySQL)	1	50	20
	DSE	ITSE-01	Data Structure	4	100	40
4th Semester	DSC (Major/Core)	ITSC-04T	Programming in .Net	3	100	40
		ITSC-04P	**Lab 4**: Programming in .Net	1	50	20
	DSE	ITSE-02	Internet and E-Commerce	4	100	40
5th Semester	DSC (Major/Core)	ITSC-05T	Programming in JAVA	3	100	40
		ITSC-05P	**Lab 5**: Programming in JAVA	1	50	20
	DSE	ITSE-03	Information and Network Security	4	100	40
6th Semester	DSC (Major/Core)	ITSC-06T	Web Technology	3	100	40
		ITSC-06P	**Lab 6**: Web Technology	1	50	20
	DSE	ITSE-04	Introduction to Artificial Intelligence	4	100	40
7th Semester	DSC (Major/Core)	ITSC-07T	Programming in Python	3	100	40
		ITSC-07P	**Lab 7**: Programming in Python	1	50	20
	DSE	ITSE-05	Computer System Architecture	4	100	40

		ITSE-06T	Mobile Application Development	3	100	40
		ITSE-06P	**Lab 8:** Mobile Application Development	1	50	20
		ITSE-07	Software Engineering	4	100	40
		ITSE-08	Theory of Computation	4	100	40
8th Semester	DSC (Major/Core)	ITSC-08T	Fundamental of IoT and Applications	3	100	40
		ITSC-08P	**Lab 9:** Fundamental of IoT and Applications	1	50	20
	DSE	ITSE-09	Soft Computing	4	100	40
		ITSE-10	Computer Graphics	4	100	40
		ITSE-11	Cloud Computing	4	100	40
		ITSE-12	Major Project	4	100	40

Dr. H.S. Hota Chairman
(Dr. K.B. Dubey)
(Dr S K Sahu)
(Dr. Anil Sharma)
(Dr. S. Jain)
(R. Khuntey)
(Sushil Kumar Sahu)
(Suresh Thakur)
ANJEETA KUJUR
11-06-2024
(Dr. Sanjay Kumar)

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			Semester - I	Session: 2024-2025
1	Course Code	ITSC-01T		
2	Course Title	**Fundamental of IT and MS-Office**		
3	Course Type	**DSC (Discipline Specific Course)**		
4	Prerequisite	*As per program*		
5	Course Learning. Outcomes (CLO)	After Completing this course, students will be able to: • Study and use of basic concepts and terminology of information technology. • Organize files and documents on storage devices. • Acquire knowledge of ICT and Internet applications. • Develop information technology solutions by evaluating user requirements in advance trends of IT. • Acquire knowledge of MS-Excel, MS-PowerPoint and MS-Access.		
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	**Indian Knowledge System and Computer Science:** Number System in India-Historical evidence, Salient aspect of Indian Mathematics, Bhuta-Samkhya system, Katapayadi system, pingala and the binary system, Sulbha Sutra as modern arithmetic and numerical mathematics. **Introduction to Computer**: History of computer, Generations and Classification, Basic Anatomy of Computer: Block Diagram, Central Processing Unit (CPU): Function of each Unit, Memory: Primary, Cache, Flash, Software and its needs, Types of S/W: System Software and Application Software, Types of Programming Language: Machine Language, Assembly Language, High Level Language their advantages and disadvantages, Language Processors/Translators: Assembler, Interpreter and Compiler, Fundamental of Information Technology: Data and Information, Concept of IT, Application of IT, What is ICT?, Components of ICT, Impact of ICT in Society. **Advanced Trends in IT:** Cloud Technology, Virtual LAN Technology, M-Commerce, Nanotechnology, Virtual Reality, 3-D Printing, Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML), Cloud Computing, Quantum Computing, G-Suite, GoI digital initiatives in higher education: SWAYAM, Swayam Prabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-Yantra and NPTEL.	12
II	**MS-Word:** Introduction to word processing software and its features, Creating new document, Saving documents, Opening and Printing documents. Home Tab: Setting fonts, Paragraph settings, Various styles (Normal, No spacing, Heading1, Heading2, Title, Strong), Find & Replace, Format painter, Copy paste and paste special. Insert Tab: Pages, Tables, Pictures, Clipart, Shapes, Header & Footer, Word Art, Equation and Symbols. Page Layout Tab: Page setup, Page Background, Paragraph (indent and spacing). Mailing Tab: Create Envelops and Labels, Mail Merge. Review Tab: Spelling and Grammar check, New comment, Protect document, View Tab: Document views, Zoom, Window (New window, Split, Switch window).	11

III	**MS-Excel:** Introducing Excel, Use of Excel sheet, creating new sheet, Saving, Opening, and Printing workbook. Home Tab: Font, Alignment, Number, Styles and cells and editing, Conditional Formatting. Insert Tab: Table, Charts (column chart, Pie chart, Bar chart, Line chart) and Texts (header & footer, word art, signature line). Page Layout Tab: Page setup options, Scale to fit (width, height, scale). Formulas Tab: Auto sum (sum, average, min, max), Logical (IF, and, or, not, true, false), Math & Trig (sin, cos, tan, ceiling, floor, fact, mod, log), Sort and Filter options, Data validation, Group and ungroup. Review Tab: Protect sheet, Protect workbook, and Share workbook. View Tab: Page breaks, Page layout, Freezing Panes, Split and hide.	11
IV	**Working with PowerPoint and MS-Access** **PowerPoint:** Introducing PowerPoint, Use of PowerPoint presentation, Creating new slides saving, Opening and printing. Home Tab: New slide, Layout, Reset, Delete, Setting text direction, Align text, Convert to smart art, Drawing options. Insert Tab: Table, Picture, Clipart, Photo album, Smart art, Shapes and chart, Movie and sound, Hyperlink and action, Text box, Word art, Object. Design Tab: Page setup options, Slide orientation, Applying various themes, Selecting background style and formatting it. Animations Tab: Custom animation for entrance, Exit and emphasis, Applying slide transition, Setting transition speed and sound, Animation on rehearse timing. Slideshow & View Tab: Start slide, Show options, and Setup options. View tab: Presentation views, Colors and Window option. **MS-Access:** Introduction to DBMS, features of DBMS, creating blank databases, Saving it in accdb format, Defining data type in MS Access, Creating tables, creating reports, query wizard.	11
Keywords	*Information Technology (IT), Information and Communication Technology (ICT), G-Suite, MS Word, MS Excel, MS Power Point, MS-Access.*	

Signature of Convener & Members of CBoS:

Chairman

ANJEETA KUJUR

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
- Fundamentals of Information Technology, Chetan Shrivastava, Kalyan Publishers.
- Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
- Computer Fundamentals and Office Automation, Dr. Santosh Kumar Miri, Iterative International Publisher IIP.
- Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
- Fundamentals of Information Technology, Alexis Leon and Mathews Leon, Vikash Publication.

Reference Books Recommended:

- Introduction to Information Technology, V. Rajaraman, PHI publication.
- Fundamental of IT, Leon and Leon, Leon Tec world.
- Introduction to Information Technology, Aksoy and Denardis, Cengage learning.
- Computers Today, Suresh K. Basandra, Galgotia Publications.
- Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.
- OFFICE 2013 in Simple Steps, Kogent Solution Inc., DremTech Press.
- Access 2010 in Simple Steps by Kogent Learning Solutions Inc.

Online Resources:

- Introduction to Computer Fundamental from W3school: https://www.w3schools.blog/computer-fundamentals-tutorial
- Introduction to MS-Word from W3school: https://www.w3schools.blog/ms-word-tutorial
- Introduction to MS-Excel from W3school: https://www.w3schools.com/excel/excel_introduction.php
- Introduction to MS-PowerPoint from W3school: https://www.w3schools.blog/powerpoint-tutorial
- Introduction to MS-Access from W3school: https://www.w3schools.com/sql/sql_ref_msaccess.asp
- Fundamentals of Computers & Information Technology (in Hindi) : https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA1-Unit-I-Fundamentals-of-Computers-Information-Technology.pdf.
- Fundamentals of Computers & Information Technology (in Hindi): https://hte.rajasthan.gov.in/dept/dte/board_of_technical_education,_rajasthan/government_polytechnic_college_hanumangarh/uploads/doc/fundamental-_final-rkd.pdf.
- Information and Computers Technology: https://cbseacademic.nic.in/web_material/doc/2014/11_ICT-IX.pdf.pdf.
- Microsoft Office (in Hindi): https://www.scribd.com/document/534988849/9-Microsoft-office-in-hindi-www-GkNotesPDF-com.
- MS-OFFICE: https://www.rgyecsm.org/uploads/books/MICROSOFT-OFFICE-BOOK.pdf.
- MS-OFFICE: Hindi Notes: https://www.copaguide.com/2020/04/ms-office-topics.html.
- Microsoft Office Full Crash Course: https://www.youtube.com/watch?v=SH4oyV5AJ6A

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

(Suresh Thakur)

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*	Semester - I	Session: 2024-2025

1	Course Code	**ITSC-01P**	
2	Course Title	**Lab 1: MS- Office**	
3	Course Type	**Practical**	
4	Prerequisite	*As per program*	
5	Course Learning. Outcomes (CLO)	After Completing this course, students will be able to: • Gain Practical knowledge of MS-Office. • Organize files and documents on storage devices. • Acquire knowledge of ICT and Internet applications. • Develop information technology solutions by evaluating user requirements in advance trends of IT. • Acquire knowledge of MS-Excel, MS-PowerPoint and MS-Access.	
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)

	List of Experiments	No. of Period
	Application of Information Technology 1. How to create mail in a Gmail account? Write the uses of Inbox, Sent, Outbox, Draft, Spam and Trash labels. 2. How to design Google form? Write the steps with appropriate windows. 3. How to create different student classes in Google classroom. 4. How do teachers create assignments and provide due dates, or grades in Google Classroom? 5. How do students find assignments, due dates, or grades in Google Classroom? 6. How to use social media platforms like twitter, Facebook and YouTube? 7. How to use social media platforms like Flickr, Skype, yahoo and WhatsApp? 8. How to use Google spreadsheets, Google Slides and Google forms? 9. How to share files between mobile phone and computer system/Laptop using Bluetooth. ********** **MS-Word** 1. Prepare a grocery list having four columns (Serial number, the name of the product, quantity and price) for the month of April, 06. ➢ Font specific actions for Title (Grocery List):14-pointArialfontinboldanditalics. ➢ The headings of the columns should be in12-point and bold. ➢ The rest of the document should be in10-point Times New Roman. ➢ Leave a gap of 12-points after the title.	**30 Hrs.**

2. Create a telephone directory.
   - The heading should be16-point Arial Font in bold.
   - The rest of the document should use10-point font size.
   - Other headings should use10-point Courier New Font.
   - The footer should show the page number as well as the date last updated.
3. Design a time-table form for your college.
   - The first line should mention the name of the collegein16-point Arial Font and should be bold.
   - The second line should give the course name/teacher's name and the department in14-pointArial.
   - Leave a gap of 12-points.
   - The rest of the document should use10-point Times New Roman font.
   - The footer should contain your specifications as the designer and date of creation.

4. XYZ Publications plan store lease an e-book design dapper your syllabus. Design the First page of the book as per the given specifications.
   - The title of the book should appearinboldusing20-pointArialfont.
   - The name of the author and his qualifications should be in the center of the page in16-point Arial font.
   - At the bottom of the document should be the name of the publisher and address in16-point Times New Roman.
   - The details of the offices of the publisher (only location) should appear in the footer.

5. Create the following one page documents.
   - Compose a note inviting friends together at your house, including a list of things to bring with them.
   - Design a certificate in landscape orientation with a border around the document.
   - Design a Garage Sale sign.
   - Make an assignment outlining your rules for your bedroom at home, using a numbered list.

6. Create the following documents:
   - A newsletter with a headline and 2 columns in portrait orientation, including at least one image surrounded by text.
   - Use a newsletter format to promote upcoming projects or events in your classroom or college.

7. Convert following text to a table, using comma as delimiter Type the following as shown (do not bold).

   Color, Style, Item
   Blue, A980, Van
   Red, X023, Car
   Green, YL724, Truck
   Name, Age, Sex
   Bob, 23, M
   Linda, 46, F
   Tom, 29, M

8. Enter the following data into a table given on the next page.

Salesperson	Dolls	Trucks	Puzzles
Kennedy, Sally	1327	1423	1193
White, Pete	1421	3863	2934
Pillar, James	5214	3247	5467
York, George	2190	1278	1928
Banks, Jennifer	1201	2528	1203
Atwater, Kelly	4098	3079	2067
Pillar, James	5214	3247	5467
York, George	2190	1278	1928
Banks, Jennifer	1201	2528	1203
Atwater, Kelly	4098	3079	2067

Add a column Region (values: S, N, N, S, S, S) between the Salesperson and Dolls columns to the given table Sort your table data by Region and within Region by Sales person in ascending order:
In this exercise, you will add a new row to your table, place the word Total at the bottom of the Sales person column, and sum the Dolls, Trucks, and Puzzles columns.

9. Wrapping of text around the image.
10. How to install MS-Office in Windows operating system.
11. How to convert word, excel and PowerPoint into pdf & pdf to word.
12. How to merge and split pdf files.

****

MS-Excel

1. Enter the Following data in Excel Sheet

REGIONAL SALES PROJECTION						
State	**Qtr1**	**Qtr2**	**Qtr3**	**Qtr4**	**Qtr Total**	**Rate Amount**
Delhi	2020	2400	2100	3000	15	
Punjab	1100	1300	1500	1400	20	
U.P.	3000	3200	2600	2800	17	
Haryana	1800	2000	2200	2700	15	
Rajasthan	2100	2000	1800	2200	20	
TOTAL						
AVERAGE						

a. Apply Formatting as follow:
   Title in TIMES NEW ROMAN
   FontSize-14
   Remaining text-ARIAL, FontSize-10
   State name and Qtr. Heading Bold, Italic with Gray Fill Color.
   Numbers in two decimal places.
   Qtr. Heading in center Alignment.
   Apply Border to whole data.
b. Calculate State and Qtr. Total
c. Calculate Average for each quarter
d. Calculate Amount=Rate*Total.

2. Given the following worksheet

	A	B	C	D
1	**Roll No.**	**Name**	**Marks**	**Grade**
2	1001	Sachin	99	
3	1002	Sehwag	65	
4	1003	Rahul	41	
5	1004	Sourav	89	
6	1005	Harbhajan	56	

Calculate the grade of these students on the basis of following guidelines:

If Marks	**Then Grade**
>=80	A+
>= 60 and <80	A
>= 50 and <60	B
<50	F

3. Given the following worksheet

	A	B	C	D	E	F	G
1	**Salesman**	**Sales in(Rs.)**					
2	**No.**	**Qtr1**	**Qtr2**	**Qtr3**	**Qtr4**	**Total**	**Commission**
3	S001	5000	8500	12000	9000		
4	S002	7000	4000	7500	11000		
5	S003	4000	9000	6500	8200		
6	S004	5500	6900	4500	10500		
7	S005	7400	8500	9200	8300		
8	S006	5300	7600	9800	6100		

Calculate the commission earned by the salesman on the basis of following Candidates:

If Total Sales	**Then Commission**
<20000	0% of sales
> 20000 and< 25000	4% of sales
> 25000 and< 30000	5.5%of sales
> 30000 and< 35000	8%of sales
>=35000	11%of sales

The total sales are the sum of sales of all the four quarters.

4. Company XYZ Ltd. pays a monthly salary to its employees who consist of basic salary, allowances & deductions. The details of allowances and deductions are as follows:
   - HRA Dependent on Basic
     30% of Basic if Basic<=1000
     25% of Basic if Basic>1000 & Basic<=3000
     20% of Basic if Basic>3000
   - DA Fixed for all employees,30% of Basic
   - Conveyance Allowance(CA)
     Rs.50/- if Basic is <=1000

Rs.75/- if Basic >1000 & Basic<=2000
Rs.100 if Basic>2000

- Entertainment Allowance (EA)
  NIL if Basic is<=1000
  Rs.100/-if Basic > 1000

Deductions

- Provident Fund
  6% of Basic
- Group Insurance Premium
  Rs.40/-if Basic is <=1500
  Rs.60/-if Basic > 1500 & Basic<=3000
  Rs.80/-if Basic>3000

Calculate the following:
Gross Salary=Basic +HRA+ DA+ CA+ EA
Total Deduction=Provident Fund + Group Insurance Premium
Net Salary=Gross Salary–Total Deduction

5. Create Payment Table for a fixed Principal amount, variable rate of interests and time in the form at below:

No. of Installments	5%	6%	7%	8%	9%
3	XX	XX	XX	XX	XX
4	XX	XX	XX	XX	XX
5	XX	XX	XX	XX	XX
6	XX	XX	XX	XX	XX

6. Use an array formula to calculate Simple Interest for given principal amounts given the rate of Interest and time

Rate of Interest	8%
Time	5Years
Principal	Simple Interest
1000`	?
18000	?
5200	?

7. The following table gives a year wise sale figure of five salesmen in Rs.

Salesman	2019	2020	2021	2022
S1	10000	12000	20000	50000
S2	15000	18000	50000	60000
S3	20000	22000	70000	70000
S4	30000	30000	100000	80000
S5	40000	45000	125000	90000

a. Calculate total sale year wise.
b. Calculate the net sale made by each salesman
c. Calculate the maximum sale made by the salesman
d. Calculate the commission for each salesman under the condition.
   >> If total sales > 4, 00,000 give 5% commission on total sale made by the salesman.

>> Otherwise give 2% commission.

e. Draw a bar graph representing the sale made by each salesman.
f. Draw a pie graph representing the sale made by a salesman in 2000.

8. Enter the following data in Excel Sheet

PERSONAL BUDGET FOR FIRST QUARTER

Monthly Income(Net): 1,475

EXPENSES	JAN	FEB	MARCH QUARTER TOTAL	QUARTER AVERAGE
Rent	600.00	600.00	600.00	
Telephone	48.25	43.50	60.00	
Utilities	67.27	110.00	70.00	
Credit Card	200.00	110.00	70.00	
Oil	100.00	150.00	90.00	
AV to Insurance	150.00			
Cable TV	40.75	40.75	40.75	
Monthly Total				

a. Calculate Quarter total and Quarter average.
b. Calculate Monthly total.
c. Surplus=Monthly income-Monthly total.
d. What would be the total surplus if monthly income is 1500.
e. How much does the telephone expense for March differ from quarter average?
f. Create a 3D column graph for telephone and utilities.
g. Create a pie chart for monthly expenses.

9. Enter the following data in Excel Sheet

TOTAL REVENUE EARNED FOR SAM'S BOOK STALL

Publisher Name	1997	1998	1999	2000	Total
A	Rs. 1,000.00	Rs. 1100.00	Rs. 1,300.00	Rs. 800.00	
B	Rs. 1,500.00	Rs. 700.00	Rs. 1,000.00	Rs. 2,000.00	
C	Rs. 700.00	Rs. 900.00	Rs. 1,500.00	Rs. 600.00	
D	Rs. 1,200.00	Rs. 500.00	Rs. 200.00	Rs. 1,100.00.	

a) Compute the total revenue earned.
b) Plot the line chart to compare the revenue of all publishers for 4 years.
c) Chart Title should be Total Revenue of Sam's Book stall(1997-2000)'
d) Give appropriate categories and value axis title.

10. Generate 25 random numbers between 0 & 100 and find their sum, average and count. How many no. are in the range 50-60.

****

MS-Power Point

1. Do the following task:
   - Start a new blank presentation
   - Your first Slide is going to be a Title Slide
   - Write the Text as in the preview below:
     - Lighthouse Co Ltd
     - Make the Font of "Lighthouse" Arial Black and size 88

- Insert a second slide this should be with a layout of Bulleted List
- Write the Text as in preview below
- [Title]: Lighthouse Co Ltd
- [Body]:
    i. Mission Statement
    ii. Company Objectives
    iii. Management Team
    iv. Employees
    v. Sales

Make the Font Color of the Points to Green
Insert a third slide that should be an Organization Chart.
Include the following people in the chart:

a. David Brent, General Manager
b. Tim Canterbury, Head of Sales
c. Gareth Keenan, Assistant to the General Manager
d. Dawn Tinsley , Human Resources Manager

Add a fourth slide and this should be a Table Chart.

The chart should look like the following:

New Products	**Discontinued Products**
Digital Cameras	8mm Cameras
Ultra Slim Video Camera	8x Zoom Video Camera
25" Plasma TVs21"	Black and White TVs
DVD Recorders	Video Players
7.1 Dolby Surround Systems	2 channel stereo systems

- Make the titles New Products and Discontinued Products with a shadow effect and centered in the cell. Widen columns to fit Text as above.
- The Fifth slide should be a Chart slide. The chart should be a bar chart, and include the following data must be used to form the chart:

	January	February	March	April
TVs	20	27	90	75
DVDs	30	38	34	31
Wifi equipment	45	46	45	43
Video Recorders	25	29	15	40

- Change the colours of the chart so that the series of bars are red, yellow, pink, and green.
- Add a light coloured background to all slides in the presentation.
- Add also Transition effects between each slide and also different effects for all text and pictures in the presentation.
- Reverse the order of the second and third slides
- Save the presentation as Light House Ltd.

2. Do the following:
Load your Presentation Application and start a new presentation
    - The first slide is a Title Slide. Select the appropriate layout and enter the title: **Annual Food Fair**
    - Add the subtitle: **.A Celebration of Eating**
    - Insert a small, red circle at the bottom right of the title slide.
    - Change the font color for the whole title and subtitle to blue, and apply a text shadow effect just to the words **Food** and **Fair**

- Insert a second slide to the presentation, selecting a layout appropriate for a series of bullet points, and using the title: **The Menu**. Enter the following text:
  i. Chocolate Desserts
  ii. Cakes and Puddings
  iii. Roast Meals
  iv. Using Pasta Creatively

- Change the line spacing for these bullet points to 1.5 lines.
- Increase the font size for the words **The Menu** in the title.
- Add a footer with your name and the text: **Food Fair** so they both appear on every slide, and number all the slides. (Make sure the number is not obscured by the red circle on the title slide)
- Insert a third slide, which is to be an organization chart. Use the title **Meet The Team**. Enter: **Maggie Peet, Manager** at the top of the chart, and show the following three as reporting to Maggie Peet: **Brian Webb, Bookings**; **Janine Newton, Publicity; Gregg Brown, Accounts**
- Embolden the text in the title of the third slide, and change the font to Arial.
- Apply a light coloured background to all the slides in the presentation
- On the third slide, insert an image suitable for the topic of food from an image library. Reduce the size of the image and place it where it will not interfere with text.
- Save the presentation as **foodfair**.
- Print the presentation with three slides per page, and close the presentation.

3. Do the followings:
   - Load your Presentation Application and start a new presentation
   - The first slide is a Title Only Slide. Select the appropriate layout and enter the title: **Cook Family Cruises**.
   - Add a small blue rectangle at the top left of this slide.
   - Change the font color for the whole title to red, and apply a text shadow effect just to the word **Cruises**.
   - Insert a second slide to the presentation, selecting a layout appropriate for a series of bullet points, and using the title: **Our Itinerary**. Enter the following text:
     a. Canary Islands
     b. Mediterranean
     c. Greek Islands
   - Change the line spacing for these bullet points to 2 lines. Increase the font size of the word **Itinerary** in the title. Add a footer with your name and the text: **Cruise Information** so they both appear on every slide, and number all the slides.
   - Insert a third slide, which is to be a graph. Use the title **Our Market Share**. Use the following data to produce a pie chart: Cook 54%; Jackson 28%; Wilson 12%; Bennett 5%
     Embolden the text in the title of the third slide, and change the font to Arial.
   - Apply a different background to each slide in the presentation.
   - On the third slide, insert an image suitable for the topic of holidays from an image library. Reduce the size of the image and place it where it will not interfere with text.
   - Add a 4-slide containing nothing but the text: **Travel with us for less!!**
   - Save the presentation as a holiday.
   - Print the presentation with 4 slides per page, and close the presentation.
4. Creating an animation looks like the leaf is falling in a tree.
5. Creating an animation looks like demolishing a world trade center in America.

****

MS-Access

1. Create a database named "college" and perform the following tasks:
   A. Create a table named "student" having following fields:
      Class, Roll no and Name with these Information i.e., Field Name, Data type and Description
   B. Fill at least 5 records.
   C. Prepare a query to display all records and Name should be in ascending order.
2. Create the employee table in MS-Access with the referential integrity-foreign key.

Note: This is a tentative list; the teachers' concern can add more experiment as per requirement.

Keywords *Information Technology (IT), Information and Communication Technology (ICT), G-Suite, MS Word, MS Excel, MS Power Point, MS-Access.*

Signature of Convener & Members of CBoS:

Dr H.S. Hota (Chairman)

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
- Fundamentals of Information Technology, Chetan Shrivastava, Kalyan Publishers.
- Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
- Computer Fundamentals and Office Automation, Dr. Santosh Kumar Miri, Iterative International Publisher IIP.
- Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
- Fundamentals of Information Technology, Alexis Leon and Mathews Leon, Vikash Publication.

Reference Books Recommended:

- Introduction to Information Technology, V. Rajaraman, PHI publication.
- Fundamental of IT, Leon and Leon, Leon Tec world.
- Introduction to Information Technology, Aksoy and Denardis, Cengage learning.
- Computers Today, Suresh K. Basandra, Galgotia Publications.
- Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.
- OFFICE 2013 in Simple Steps, Kogent Solution Inc., DremTech Press.
- Access 2010 in Simple Steps by Kogent Learning Solutions Inc.

Online Resources:

- Introduction to Computer Fundamental from W3school: https://www.w3schools.blog/computer-fundamentals-tutorial
- Introduction to MS-Word from W3school: https://www.w3schools.blog/ms-word-tutorial
- Introduction to MS-Excel from W3school: https://www.w3schools.com/excel/excel_introduction.php

- Introduction to MS-PowerPoint from W3school: https://www.w3schools.blog/powerpoint-tutorial
- Introduction to MS-Access from W3school: https://www.w3schools.com/sql/sql_ref_msaccess.asp
- Fundamentals of Computers & Information Technology (in Hindi) : https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA1-Unit-I-Fundamentals-of-Computers-Information-Technology.pdf.
  Fundamentals of Computers & Information Technology (in Hindi): https://hte.rajasthan.gov.in/dept/dte/board_of_technical_education,_rajasthan/government_polytechnic_college_hanumangarh/uploads/doc/fundamental-_final-rkd.pdf.
  Information and Computers Technology: https://cbseacademic.nic.in/web_material/doc/2014/11_ICT-IX.pdf.pdf.
- Microsoft Office (in Hindi): https://www.scribd.com/document/534988849/9-Microsoft-office-in-hindi-www-GkNotesPDF-com.
- MS-OFFICE: https://www.rgycsm.org/uploads/books/MICROSOFT-OFFICE-BOOK.pdf.
- MS-OFFICE: Hindi Notes: https://www.copaguide.com/2020/04/ms-office-topics.html.
- Microsoft Office Full Crash Course: https://www.youtube.com/watch?v=SH4oyV5AJ6A

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)
Shailendra Ajit
ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*	Semester - II	Session: 2024-2025

1	Course Code	**ITSC-02T**		
2	Course Title	**Programming in C++**		
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: • Understand the fundamentals of object oriented programming. • Write programs related to concept of object oriented program • Define functions, class and to create own Libraries. • Write programs for file handling. • Develop small programs to solve real world problems.		
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 and Programming Concepts :** Definition of Program, Source file, Object file, Executable file, Header file, Language Translator- Assembler, Interpreter, Compiler, Testing, Debugging, Linker and Loader, Algorithms, Flow Charts, History of C language, Structure of C program , C Tokens : Identifiers, Keywords, Constants, Variables, Operators, Data Types, Control structure: Conditional and looping statements, Operator Precedence and Associativity, Array and its types, Pointer, Functions : Standard Library and User defined functions, function prototype, Call by value and Call by reference, recursive functions, String functions.	12
II	**Introduction to Object Oriented Programming:** Concept of object oriented programming, Features of C++, Structure of C++ program, Data types, structure, class and objects, Access Specifiers: Private, Public, Protected, inline functions, static data and static functions. **Constructor:** Default constructor, Copy constructor, Parameterized constructor, Destructor.	11
III	**Inheritance and Polymorphism**: Definition, Concept of base and derived class, Types of Inheritance: Single, Multilevel, Multiple, Hierarchical and Hybrid Inheritance. Polymorphism: Definition, Compile time polymorphism: Function overloading, Operator overloading, constructor overloading, Runtime polymorphism: Virtual Function, pure virtual function. Inline function, friend function, friend class.	11
IV	**Input-Output and File Handling :** I/O classes, File and Stream classes, Char I/O, String I/O, Object I/O, File Pointer, Opening and Closing file. **Exception Handling and Standard Template Library:** Definition, Exception basics, try, catch and throws keywords, Template.	11
Keywords	*Token, Identifier, Keyword, Array, Function, Class, Object, Polymorphism, Inheritance, Constructor, Template.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

(Suresh Thakur)

10-05-2024

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Peter Juliff, Program Design, PHI Publications.
- Yashwant Kanetkar, Let us C: BPB Publications.
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw Hill

Reference Books Recommended:

- Y. Kanetkar, Let us C++, B.P.B Publication .
- E. Balaguruswamy, Programming in C++, Tata McGraw Hill.
- R. Kumar, Object Oriented Programming with C++, Prakhar Publication(Hindi)
- Dhupiya, Lakhyani , C++ Programming Alka Publications, Ajmer (Paperback, Dhupiya, Lakhyani)(Hindi)

Online Resources:

- Introduction to C and C++ from SWAYAM/NPTEL
  https://onlinecourses.nptel.ac.in/noc22_cs103/preview
  https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2
- Constant and Inline Function through NPTEL:
  https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10
- Pointer and Reference NPTEL
  https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12
- Function Overloading NPTEL
  https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=13
- Operator Overloading NPTEL
  https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17
- Dynamic Memory Management NPTEL
  https://www.youtube.com/watch?v=lkFK2X6qIc0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18
- Class and Object NPTEL
  https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- Access Specifiers NPTEL
  https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=22
- Constructor and Destructor NPTEL
  https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- C++ different topics from W3School
  https://www.w3schools.com/CPP/default.asp
- C++ different topics from Javatpoint
  https://www.javatpoint.com/cpp-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. Hora
Chairman

(Saroj Thakur)

Sheu Urdn Ary

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*			Semester - II	Session: 2024-2025
1	Course Code	**ITSC-02P**		
2	Course Title	**Lab 2: Programming in C++**		
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: • Understand the fundamental programming concepts and methodologies which are essential to create good C++ programs. • Code, test, and implement a well-structured, robust computer program using the C++ programming language. • Write reusable modules (collections of functions). • Understand design/implementation issues involved with variable allocation and binding, control flow, types, subroutines, parameter passing. • Develop an in-depth understanding of functional, logic, and object-oriented programming paradigms.		
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. Write a program in C++ for addition of two numbers using float data type. 2. Write a program in C++ to find the biggest number between two numbers. 3. Write a program in C++ to find the factorial value of any entered number using do – while loop. 4. Write a program in C++ for various arithmetic operations using switch case statements. 5. Write a program in C++ for Multiplication of two 3X3 matrices. 6. Write a program in C++ to store five books of information using structure. 7. Write a program in C++ to store six employee information using union. 8. Write a program in C++ to calculate simple interest using call by value and call by reference method. 9. Write a program in C++ to find the sum and average of five numbers using class and objects. 10. Write a program in C++ to multiply two numbers using private and public member functions. 11. Write a program in C++ to print structure like this using scope resolution operator 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5 12. Write a program in C++ for constructor and Destructor. 13. Write a program in C++ for multiple inheritance.	**30**

14. Write a program in C++ for operator overloading.
15. Write a program in C++ for friend class and friend function.
16. Write a program in C++ for virtual function and virtual class.
17. Write a program in C++ for Exception Handling.
18. Write a program in C++ to open and close a file using file Handling.
19. Given two ordered arrays of integers, write a program to merge the two-arrays to get an ordered array.
20. WAP to display Fibonacci series (i) using recursion, (ii) using iteration
21. WAP to calculate Factorial of a number (i) using recursion, (ii) using iteration
22. WAP to calculate GCD of two numbers (i) with recursion (ii) without recursion.
23. Create a Matrix class using templates. Write a menu-driven program to perform following Matrix Operations (2-D array implementation): a) Sum b) Difference c) Product d) Transpose 22. Create the Person class. Create some objects of this class (by taking information from the user). Inherit the class Person to create two classes Teacher and Student class. Maintain the respective information in the classes and create, display and delete objects of these two classes (Use Runtime Polymorphism).
24. Create a class Triangle. Include overloaded functions for calculating area. Overload assignment operator and equality operator.
25. Create a class Box containing length, breadth and height. Include following methods in it: a) Calculate surface Area b) Calculate Volume c) Increment, Overload ++ operator (both prefix & postfix) d) Decrement, Overload -- operator (both prefix & postfix) e) Overload operator == (to check equality of two boxes), as a friend function f) Overload Assignment operator g) Check if it is a Cube or cuboid
26. Create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
27. Write a program to retrieve the student information from the file created in the previous question and print it in the following format: Roll No. Name Marks
28. Copy the contents of one text file to another file, after removing all whitespaces.
29. Write a program for exception handling.
30. Write a program to insert data into file and to display it.

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

Keywords	*Array, Function, Structure, union, matrix, constructor, destructor, inheritance.*

Signature of Convener & Members of CBoS:

(Dr. H.S. Hota) (Chairman)

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Peter Juliff, Program Design, PHI Publications.
- Yashwant Kanetkar, Let us C: BPB Publications.
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw Hill

Reference Books Recommended:

- Y. Kanetkar, Let us C++, B.P.B Publication .
- E. Balaguruswamy, Programming in C++, Tata McGraw Hill.

- R. Kumar, Object Oriented Programming with C++, Prakhar Publication(Hindi)
- Dhupiya, Lakhyani , C++ Programming Alka Publications, Ajmer (Paperback, Dhupiya, Lakhyani)(Hindi)

Online Resources:

- Introduction to C and C++ from SWAYAM/NPTEL
  https://onlinecourses.nptel.ac.in/noc22_cs103/preview
  https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2
- Constant and Inline Function through NPTEL:
  https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10
- Pointer and Reference NPTEL
  https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12
- Function Overloading NPTEL
  https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=13
- Operator Overloading NPTEL
  https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17
- Dynamic Memory Management NPTEL
  https://www.youtube.com/watch?v=lkFK2X6qIc0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18
- Class and Object NPTEL
  https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- Access Specifiers NPTEL
  https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=22
- Constructor and Destructor NPTEL
  https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- C++ different topics from W3School
  https://www.w3schools.com/CPP/default.asp
- C++ different topics from Javatpoint
  https://www.javatpoint.com/cpp-tutorial

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

ANJEETA KURI

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			**Semester - III**	**Session: 2024-2025**
1	Course Code	**ITSC-03T**		
2	Course Title	**Relational Database Management System**		
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: • 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.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

(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

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*			Semester - III	Session: 2024-2025
1	Course Code	**ITSC-03P**		
2	Course Title	**Lab 3: 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.*

Signature of Convener & Members of CBoS:

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/IoL9Vc2SRwQ
- 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. I.T.S. Hota
Chairman

ANJEETA KUJU

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*	Semester - IV	Session: 2024-2025

1	Course Code	**ITSC-04T**		
2	Course Title	**Programming in .Net**		
3	Course Type	**DSC (Discipline Specific Course)**		
4	Prerequisite	***As per program***		
5	Course Learning. Outcomes (CLO)	After Completing this course, students will be able to: • Study and use of .NET framework and object-oriented programming. • Develop the console and GUI applications using .Net programming. • Evaluate the .NET framework namespace contents. • Understand the procedures, File I/O, Error handling and Message queues. • Understand and remember the components in VB.NET IDE, ADO.NET and also the window forms.		
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 .NET**: Overview of .net framework, Features and architecture, Managed Execution process, CLR, Common language specification, JIT Compilation, MSIL, Namespace, Assemblies, Metadata common type, System, Visual development and event driven programming , Cross language, Interoperability, Garbage collection.	12
II	**Programming with .NET Framework:** Windows form: working with Visual Studio IDE, Creating a .NET solution, MDI application, Components and controls, Data types, Variable, Type conversions, Operators, Methods and events, Scope and lifetime of variables, Creating Enumerations.	11
III	**Control Structures:** Control Structures: conditional statement, Loops, Arrays, Types of methods, Method data, Creating Sub Procedures and Function, Introduction to exception handling try catch statement, finally statement, throw, user defined Exception. **GUI Programming**: GUI Programming with window forms, Showing & hiding, Textbox, RichText box, Label, Button, Listbox, Combobox, Checkbox, Picturebox, Radio button, Toggle button, Panel, Groupbox, Scrollbar, Timer, Dialog boxes, OpenfileDialog, Save File dialog, Print dialog, Front dialog, Color dialog, Designing menus and sub menus, Msgbox and Inputbox.	11
IV	**Database Programming with ADO.net** – ADO .Net Architecture, .Net data provider, dataset components, creating database application using Window forms (Database connectivity through ADO.Net), Accessing data using server explorer, Data Adapters and Data sets, Command & Data reader, Data bind controls, displaying data in data grid.	11
Keywords	*.NET, Window form, Graphical User Interface (GUI), MDI, ADO.Net*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

PART–C: Learning Resources

Text Books Recommended:

- Visual Basic .Net Complete- by BPB Publications , New Delhi
- The Complete Reference VB.Net –by Jeffery R. Shapiro , Tata Mcgraw Hill.
- Bill Evjen, Jason Beres, et.al, Visual Basic .Net programming, Wiley Dreamtech India (p) Ltd.

Reference Books Recommended:

- Professional VB.Net 2003 – by Bill Evjen & others , Wiley Dreamtech India(P) Ltd. New Delhi
- Fergal Grimes, Microsoft .NET for programmers, Shroff Publishers & Distributors (P) Ltd.
- Thuan Thai & Hoang Q.Lam, .NET Framework Essentials, Shroff Publishers & Distributors (P) Ltd.
- MSDN online – by Microsoft

Online Resources:

- VB.Net Basic Tutorial: https://www.tutorialspoint.com/vb.net/vb.net_loops.htm.
- VB.NET Tutorial: https://www.javatpoint.com/vb-net.
- VB.NET Tutorial for Beginners: Learn VB.Net Programming : https://www.guru99.com/vb-net-tutorial.html?gpp&gpp_sid.
- Home and Learn: VB Net Programming Course Contents: https://www.homeandlearn.co.uk/NET/vbNet.html.
- Programming with VB.NET : https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA4B-Part-I-Programming-with-VB-.Net_.pdf
- Programming with visual Basic.Net (Notes in Hindi): https://computerhindinotes.com/programming-with-visual-basic-net-notes-in-hindi/
- Programming with visual Basic.Net (Video Lectures in Hindi): https://computerhindinotes.com/visual-basic-net-video-tutorials-in-hindi.
- Visual Basic .NET The Complete Reference: https://ravithanki.files.wordpress.com/2010/10/complete-reference-vb_net.pdf
- Learning Visual Basic.NET Language: https://riptutorial.com/Download/visual-basic--net-language.pdf.
- VB.NET Programming: https://mkasoft.com/downloads/VB.NET%20programming.pdf.
- Visual Basic.Net: https://books-library.net/files/books-library.online_noo25328f31569407903f036b-8313.pdf
- Visual Basic.Net Black Book: https://bcaofficial.wordpress.com/wp-content/uploads/2017/05/vb-net-black-book.pdf.
- A Programmer's Introduction to Visual Basic.Net: https://www.interplat.com/vbnet.pdf.
- Visual Basic 2017 Made Easy : https://www.vbtutor.net/vb2017/vb2017me_preview.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):	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

(By Course Teacher)		
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 Sunil ANJEETA KUJU		

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*			**Semester - IV**	**Session: 2024-2025**
1	Course Code	**ITSC-04P**		
2	Course Title	**Lab 4: Programming in .Net**		
3	Course Type	**Practical**		
4	Prerequisite	*As per program*		
5	Course Learning Outcomes (CLO)	After Completing this course, students will be able to: • Study and use of .NET framework and object-oriented programming. • Develop the console and GUI applications using .Net programming. • Evaluate the .NET framework namespace contents. • Understand the procedures, File I/O, Error handling and Message queues. • Understand and remember the components in .NET IDE, ADO.NET and also the window forms. • Design, create, build, and debug dot net applications.		
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	List of Experiments	No. of Period
List of practical experiments	1. Write a program to addition, subtraction, multiplication and division of any two numbers. 2. Write a program to find the maximum between three numbers. 3. Write a program to check whether a number is negative, positive or zero. 4. Write a program to check whether a year is a leap year or not. 5. Design an application to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade as following: a. Percentage > 90%: Grade A b. Percentage >= 80%: Grade B c. Percentage > 70%: Grade C d. Percentage >60%: Grade D e. Percentage >= 40%: Grade E f. Percentage < 40%: Grade F 6. Design an application to input basic salary of an employee and calculate its Gross salary following: a. Basic Salary <= 10000: HRA = 20%, DA = B0% b. Basic Salary <n20000: HRA = 30%, DA = 90% c. Basic Salary> 20000: HRA = 30%, DA = 95% 7. Design an application to input electricity unit charges and calculate the given condition: a. For first 50 units Rs. 0.50/unit b. For next 100 units Rs. 0.75/unit c. For next 100 units Rs. 1.20/unit d. For unit above 250 Rs. 1.50/unit e. An additional surcharge of 20% is added to the bill	30

8. Write a program to convert decimal to binary number system using bitwise operators.
9. Write a program to swap two numbers using the bitwise operator.
10. Write a program to create Simple Calculator using a select case.
11. Write a program to find the sum of all natural numbers between 1 to n.
12. Write a program to enter any number and print its reverse.
13. Write a program to enter any number and check whether the number is palindrome or not.
14. Write a program to check whether a number is Armstrong number or not
15. Write a program to print Fibonacci series up to n terms.
16. Write a program to print Pascal triangles up to n rows.
17. Write a program to print all negative elements in an array.
18. Design a digital clock using timer control
19. Create an application that offers various food items to select from check boxes and a mode of payment using a radio button. It then displays the total amount payable.
20. Create an application to implement the working of Context menu on textbox
21. Write a program to illustrate all functionalities of list box and combo box.
22. Write a program for temperature conversion using a radio button.
23. Write a program to launch a rocket using Picture Box and Timer control
24. Write a program to change the back color of any control using a scroll box.
25. Write a program to search an element for a one dimensional array.
26. Design a menu such that it contains submenu such as Addition, Subtraction, Scalar Multiplication, and Transpose of two metrics.
27. Write a program to find greatest among three given number using user define procedures
28. Write a program to check whether given number neon or not using user defined function
29. Write a program to check whether a given number is Niven or not using procedure.
30. Write a program to check whether a given number is duck number or not
31. Write a program to check whether a given number is a spy number or not.
32. Write a program to check whether a given number
33. Design the following application using radio button and checkbox:
34. Develop an application which is similar to notepad using menus.
35. Develop an application for facilitating purchasing order.
36. Develop an application for a billing system in a coffee shop.
37. Develop an application which is similar to login form.
38. Define structure student structure student has written member for storing name roll number name of three subjects and marks with member function to store and print data.
39. create a class circle with data member radius provide member function to calculate area driver class fare from class circle provide member function to calculate volume derived class cylinder from class is fair with additional data member for height and member function to calculate volume
40. Write a program that implements the concept of encapsulation.
41. Write a program to demonstrate the concept of function overloading.
42. Create a class student having a data member to store roll number name of the student name of three subject Max marks, Min marks, and obtained marks. Declare an object of class. Provide facilities to input data in data members and display result of students
43. Create a class array having an array of integer having five elements at data member provide following facilities: a) constructor to get number in array element b) sort the elements

	44. Create a table for employees and write a program using a data set to add, delete, edit and navigate records. 45. Write a program to access a database using ADO.NET and display key columns in the combo box or list box when an item is selected in it its corresponding records are shown in data grid control. 46. Write a program to calculate factorial of a number using user defined procedure. **Note:** This is a tentative list; the teachers' concern can add more program as per requirement.	
Keywords	*.NET, Window form, GUI, MDI, ADO.Net.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJLATA KUJU

PART–C: Learning Resources

Text Books Recommended:

- Visual Basic .Net Complete- by BPB Publications , New Delhi
- The Complete Reference VB.Net –by Jeffery R. Shapiro , Tata Mcgraw Hill.
- Bill Evjen, Jason Beres, et.al, Visual Basic .Net programming, Wiley Dreamtech India (p) Ltd.

Reference Books Recommended:

- Professional VB.Net 2003 – by Bill Evjen & others , Wiley Dreamtech India(P) Ltd. New Delhi
- Fergal Grimes, Microsoft .NET for programmers, Shroff Publishers & Distributors (P) Ltd.
- Thuan Thai & Hoang Q.Lam, .NET Framework Essentials, Shroff Publishers & Distributors (P) Ltd.
- MSDN online – by Microsoft

Online Resources:

- VB.Net Basic Tutorial: https://www.tutorialspoint.com/vb.net/vb.net_loops.htm.
- VB.NET Tutorial: https://www.javatpoint.com/vb-net.
- VB.NET Tutorial for Beginners: Learn VB.Net Programming : https://www.guru99.com/vb-net-tutorial.html?gpp&gpp_sid.
- Home and Learn: VB Net Programming Course Contents: https://www.homeandlearn.co.uk/NET/vbNet.html.
- Programming with VB.NET : https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA4B-Part-I-Programming-with-VB-.Net_.pdf
- Programming with visual Basic.Net (Notes in Hindi): https://computerhindinotes.com/programming-with-visual-basic-net-notes-in-hindi/
- Programming with visual Basic.Net (Video Lectures in Hindi): https://computerhindinotes.com/visual-basic-net-video-tutorials-in-hindi.
- Visual Basic .NET The Complete Reference: https://ravithanki.files.wordpress.com/2010/10/complete-reference-vb_net.pdf
- Learning Visual Basic.NET Language: https://riptutorial.com/Download/visual-basic--net-language.pdf.
- VB.NET Programming: https://mkasoft.com/downloads/VB.NET%20programming.pdf.
- Visual Basic.Net: https://books-library.net/files/books-library.online_noo25328f31569407903f036b-8313.pdf

- Visual Basic.Net Black Book: https://bcaofficial.wordpress.com/wp-content/uploads/2017/05/vb-net-black-book.pdf.
- A Programmer's Introduction to Visual Basic.Net: https://www.interplat.com/vbnet.pdf.
- Visual Basic 2017 Made Easy: https://www.vbtutor.net/vb2017/vb2017me_preview.pdf.
- Introduction and Programming of dotNet: www.w3school.com

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

ANJEETA KUJU

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*	Semester -V	Session: 2024-2025

1	Course Code	**ITSC-05T**
2	Course Title	**Programming in Java**
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: • 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, writing simple java program.	12
II	**Inheritance, Packages and interface-** concept of super and sub class, types of inheritance, access specifiers, method overriding, abstract class, constructor in multilevel inheritance, using final with inheritance. **Package:** defining package, rules for creating a new package, concept of class-path, access protection, importing package. Interface: defining and implementing interface, extending interface, nested interface, importance of interface in java.	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.*

Signature of Convener & Members of CBoS:

Dr H.S. Hota
Chairman
ANJEETA KUJU

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 of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*		**Semester – V**		**Session: 2024-2025**
1	**Course Code**	**ITSC-5P**		
2	**Course Title**	**Lab 5: Programming in Java**		
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: • 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 the prime number 3. Write a program to calculate simple interest using the GUI Form 4. Write a program to demonstrate the thread life cycle 5. Write a program to show the use of applet 6. Write a program to find the second largest and second smallest number in array 7. Write a program to demonstrate the concept of function overloading 8. Write a program to demonstrate the concept of inheritance 9. Write a program to demonstrate the concept of access specifiers in java 10. Write a program to implement the concept of interface 11. Write a program to show the creation of package in java 12. Write a program to design the user registration form with basic registration details 13. Write a program to show the exception handling process in java. 14. Write a program to show the significance of multithreading 15. Write a program to read the data from the consol device and store it in any file in secondary storage 16. Write a program to copy the content of any file into another file. 17. Write a program to demonstrate the advantages of event delegation model, 18. 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.	

Signature of Convener & Members of CBoS:

Dr. H. S Hota
Chairman

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 of CBoS:

Dr. H.S Hota
Chairman

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			Semester - VI	Session: 2024-2025
1	Course Code	**ITSC-06T**		
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. H.S. Hota
Chairman

ANJEETA KUJUR

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=PLLQPIumE5cEgzU5hChH1V3H93x4UOlHR&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- **5**x4 =**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 INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*	Semester – VI	Session: 2024-2025

1	Course Code	**ITSC-06P**
2	Course Title	**Lab 6: 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

****

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.

****

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.

****

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.

****

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 experiment as per requirement.

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

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

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=PLLQPIumE5cEgzU5hChH1V3H93x4UOlHR&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

Secretary

ANJEETA KUTU

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*		Semester - VII	Session: 2024-2025
1	Course Code	**ITSC-07T**	
2	Course Title	**Programming in Python**	
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. • Use libraries to write python program. • Use various data structure of python. • 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.*	

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:

- 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_kuI0XpUQKk0ycO
- 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

(Seren Thakur)

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*			Semester - VII	Session: 2024-2025
1	Course Code	**ITSC-07P**		
2	Course Title	**Lab 7: Programming in Python**		
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: • 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 yearǁ or —not a leap yearǁ. 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 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].	**30**

	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.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUMARI

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_kuI0XpUQKk0ycO
- 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

ANJEETA KUJU

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			Semester - VIII	Session: 2024-2025
1	Course Code	**ITSC-08T**		
2	Course Title	**Fundamentals of IoT and Applications**		
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: • Understand IoT value chain structure (device, data cloud) application areas and technologies involved. • Understand IoT sensors and technological challenges faced by IoT devices, with a focus on wireless, energy, power, and sensing modules • Design IoT projects using Raspberry Pi and Arduino.		
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 Internet of Things (IoT):** Definition and Characteristics of IoT, Architecture of IoT, Sensors, Actuators, Physical Design of IoT – IoT Protocols, IoT communication models, IoT Communication APIs, IoT enabled Technologies – Wireless Sensor Networks, Cloud Computing, Embedded Systems, IoT Levels and Templates, Domain Specific IoTs – Home, City, Environment, Energy, Agriculture and Industry.	13
II	**IoT Physical Devices**: Introduction to Arduino and Raspberry Pi- Installation, Interfaces (Serial, SPI, I2C). **Controlling Hardware**: Connecting LED, Buzzer, Switching High Power devices with transistors, Controlling AC Power devices with Relays, Controlling servo motor, speed control of DC Motor, unipolar and bipolar Stepper motors.	11
III	**Sensors:** Light sensor, temperature sensor with thermistor, voltage sensor, ADC and DAC, Temperature and Humidity Sensor DHT11, Motion Detection Sensors, Wireless Bluetooth Sensors, Level Sensors, USB Sensors, Embedded Sensors, Distance Measurement with ultrasound sensor.	10
IV	**Applications of IoT:** Home Automation, Smart Cities, Energy, Retail Management, Logistics, Agriculture, Health and Lifestyle, Industrial IoT, Legal challenges, IoT design Ethics, IoT in Environmental Protection.	11
Keywords	*Internet of Things, IOT Sensors, IOT Actuators, Arduino, Raspberry Pi*	

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:

- Internet of Things - A Hands-on Approach, Arshdeep Bahga and Vijay Madisetti, Universities Press, 2015, ISBN: 9788173719547
- Getting Started with Raspberry Pi, Matt Richardson & Shawn Wallace, O'Reilly (SPD), 2014, ISBN: 9789350239759
- Raspberry Pi Cookbook, Software and Hardware Problems and solutions, Simon Monk, O'Reilly (SPD), 2016, ISBN 7989352133895

Reference Books Recommended:

- Peter Waher, 'Learning Internet of Things', Packt Publishing, 2015 3. Editors Ovidiu Vermesan
- Peter Friess,'Internet of Things – From Research and Innovation to Market Deployment', River Publishers, 2014
- N. Ida, Sensors, Actuators and Their Interfaces, SciTech Publishers, 2014.

Online Resources:

- Swayam/NPTEL: https://www.youtube.com/channel/UC6ZY_csXZc7YZZm2W8HcQ6A
- Javatpoint: https://www.javatpoint.com/iot-internet-of-things
- Tutorialspoint: https://www.tutorialspoint.com/internet_of_things/index.htm
- Topics Related to IOT from data-flair: https://data-flair.training/blogs/iot-tutorial/
- Topics Related to IOT from edureka: https://www.edureka.co/blog/iot-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. M.S. Hota
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ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*	Semester - VIII	Session: 2024-2025

1	Course Code	ITSC-08P
2	Course Title	Lab 8: Fundamentals of IoT and Applications
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: • Handle various real world project. • Understand work of IoT. • Understand application of IoT in real world scenario. • Configure Arduino and Raspberry Pi for various real world project.
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 Experiment	1. Data acquisition using Multimeter and oscillographic recorder 2. Connect an LED to GPIO pin 25 and control it through the command line. 3. Connect an LED to GPIO pin 24 and a Switch to GPIO 25 and control the LED with the switch. 4. The state of LED should toggle with every press of the switch Use DHT11 temperature sensor and print the temperature and humidity of the room with an interval of 15 seconds 5. Use joystick and display the direction on the screen 6. Use Light Dependent Resistor (LDR) and control an LED that should switch-on/off depending on the light. 7. Create a traffic light signal with three colored lights (Red, Orange and Green) with a duty cycle of 5-2-10 seconds. 8. Switch on and switch of a DC motor based on the position of a switch. 9. Convert an analog voltage to digital value and show it on the screen. 10. Create a door lock application using a reed switch and magnet and give a beep when the door is opened. 11. Control a 230V device (Bulb) with Raspberry Pi using a relay. 12. Control a 230V device using a threshold temperature, using a temperature sensor. 13. Create an application that has three LEDs (Red, Green and white). The LEDs should follow the cycle (All Off, Red On, Green On, White On) for each clap (use sound sensor). 14. Create a web application for the above applications wherever possible with suitable modifications to get input and to send output. **Note:** Concerned teacher can add additional experiments as per requirement.	30

Keywords	*Internet of Things, IOT Sensors, IOT Actuators, Arduino, Raspberry Pi.*

Signature of Convener & Members of CBoS:

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PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Internet of Things - A Hands-on Approach, Arshdeep Bahga and Vijay Madisetti, Universities Press, 2015, ISBN: 9788173719547
- Getting Started with Raspberry Pi, Matt Richardson & Shawn Wallace, O'Reilly (SPD), 2014, ISBN: 9789350239759
- Raspberry Pi Cookbook, Software and Hardware Problems and solutions, Simon Monk, O'Reilly (SPD), 2016, ISBN 7989352133895

Reference Books ***Recommended:***

- Peter Waher, 'Learning Internet of Things', Packt Publishing, 2015 3. Editors Ovidiu Vermesan
- Peter Friess,'Internet of Things – From Research and Innovation to Market Deployment', River Publishers, 2014
- N. Ida, Sensors, Actuators and Their Interfaces, SciTech Publishers, 2014.

Online Resources:

- Swayam/NPTEL: https://www.youtube.com/channel/UC6ZY_csXZc7YZZm2W8HcQ6A
- Javatpoint: https://www.javatpoint.com/iot-internet-of-things
- Tutorialspoint: https://www.tutorialspoint.com/internet_of_things/index.htm
- Topics Related to IOT from data-flair: https://data-flair.training/blogs/iot-tutorial/
- Topics Related to IOT from edureka: https://www.edureka.co/blog/iot-tutorial/
- Lab Manuals:
  - https://www.lnmiit.ac.in/Department/ECE/uploaded_files/Internet_of_Things_Lab_manual.pdf
  - https://www.iare.ac.in/sites/default/files/lab1/IARE_IOT%20LAB%20_MANUAL.pdf
  - https://www.amirajcollege.in/wp-content/uploads/2020/06/2180709-iot_manual.pdf
  - https://peer.asee.org/internet-of-things-iot-laboratory.pdf
  - https://www.teachmint.com/tfile/studymaterial/class-7th/internetofthingsiot/iotlabmanualpdf/d85015cf-722b-4b50-86e4-0f456f91bfa0
  - https://www.slideshare.net/RadheyShyam18/iot-lab-manual-new
  - https://www.psgrkcw.ac.in/wp-content/uploads/2021/08/IoT-Applications-Lab-Manual-IT.pdf
  - https://www.coursehero.com/file/37028140/IoT-Lab-Manualpdf/
  - https://www.scribd.com/document/408744059/IoT-Lab-Manual
  - https://mrcet.com/CSE_downloads.html
  - http://iotmumbai.bharatividyapeeth.edu/index.php/lab-manuals#computer-technology

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

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			Semester - I	Session: 2024-2025
1	Course Code	ITGE-01T		
2	Course Title	**Fundamental of IT and MS-Office**		
3	Course Type	**DGE (Discipline Generic Elective)**		
4	Prerequisite	*As per program*		
5	Course Learning. Outcomes (CLO)	After Completing this course, students will be able to: • Study and use of basic concepts and terminology of information technology. • Organize files and documents on storage devices. • Acquire knowledge of ICT and Internet applications. • Develop information technology solutions by evaluating user requirements in advance trends of IT. • Acquire knowledge of MS-Excel, MS-PowerPoint and MS-Access.		
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	**Indian Knowledge System and Computer Science:** Number System in India-Historical evidence, Salient aspect of Indian Mathematics, Bhuta-Samkhya system, Katapayadi system, pingala and the binary system, Sulbha Sutra as modern arithmetic and numerical mathematics. **Introduction to Computer**: History of computer, Generations and Classification, Basic Anatomy of Computer: Block Diagram, Central Processing Unit (CPU): Function of each Unit, Memory: Primary, Cache, Flash, Software and its needs, Types of S/W: System Software and Application Software, Types of Programming Language: Machine Language, Assembly Language, High Level Language their advantages and disadvantages, Language Processors/Translators: Assembler, Interpreter and Compiler, Fundamental of Information Technology: Data and Information, Concept of IT, Application of IT, What is ICT?, Components of ICT, Impact of ICT in Society. **Advanced Trends in IT:** Cloud Technology, Virtual LAN Technology, M-Commerce, Nanotechnology, Virtual Reality, 3-D Printing, Internet of Things (IoT), Artificial Intelligence (AI), Machine Learning (ML), Cloud Computing, Quantum Computing, G-Suite, GoI digital initiatives in higher education: SWAYAM, Swayam Prabha, National Academic Depository, National Digital Library of India, E-Sodh-Sindhu, Virtual labs, e-Yantra and NPTEL.	12
II	**MS-Word:** Introduction to word processing software and its features, Creating new document, Saving documents, Opening and Printing documents. Home Tab: Setting fonts, Paragraph settings, Various styles (Normal, No spacing, Heading1, Heading2, Title, Strong), Find & Replace, Format painter, Copy paste and paste special. Insert Tab: Pages, Tables, Pictures, Clipart, Shapes, Header & Footer, Word Art, Equation and Symbols. Page Layout Tab: Page setup, Page Background, Paragraph (indent and spacing). Mailing Tab: Create Envelops and Labels, Mail Merge. Review Tab: Spelling and Grammar check, New comment, Protect document, View Tab: Document views, Zoom, Window (New window, Split, Switch window).	11

III	**MS-Excel:** Introducing Excel, Use of Excel sheet, creating new sheet, Saving, Opening, and Printing workbook. Home Tab: Font, Alignment, Number, Styles and cells and editing, Conditional Formatting. Insert Tab: Table, Charts (column chart, Pie chart, Bar chart, Line chart) and Texts (header & footer, word art, signature line). Page Layout Tab: Page setup options, Scale to fit (width, height, scale). Formulas Tab: Auto sum (sum, average, min, max), Logical (IF, and, or, not, true, false), Math & Trig (sin, cos, tan, ceiling, floor, fact, mod, log), Sort and Filter options, Data validation, Group and ungroup. Review Tab: Protect sheet, Protect workbook, and Share workbook. View Tab: Page breaks, Page layout, Freezing Panes, Split and hide.	11
IV	**Working with PowerPoint and MS-Access** **PowerPoint:** Introducing PowerPoint, Use of PowerPoint presentation, Creating new slides saving, Opening and printing. Home Tab: New slide, Layout, Reset, Delete, Setting text direction, Align text, Convert to smart art, Drawing options. Insert Tab: Table, Picture, Clipart, Photo album, Smart art, Shapes and chart, Movie and sound, Hyperlink and action, Text box, Word art, Object. Design Tab: Page setup options, Slide orientation, Applying various themes, Selecting background style and formatting it. Animations Tab: Custom animation for entrance, Exit and emphasis, Applying slide transition, Setting transition speed and sound, Animation on rehearse timing. Slideshow & View Tab: Start slide, Show options, and Setup options. View tab: Presentation views, Colors and Window option. **MS-Access:** Introduction to DBMS, features of DBMS, creating blank databases, Saving it in accdb format, Defining data type in MS Access, Creating tables, creating reports, query wizard.	11
Keywords	*Information Technology (IT), Information and Communication Technology (ICT), G-Suite, MS Word, MS Excel, MS Power Point, MS-Access.*	

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
- Fundamentals of Information Technology, Chetan Shrivastava, Kalyan Publishers.
- Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
- Computer Fundamentals and Office Automation, Dr. Santosh Kumar Miri, Iterative International Publisher IIP.
- Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
- Fundamentals of Information Technology, Alexis Leon and Mathews Leon, Vikash Publication.

Reference Books Recommended:

- Introduction to Information Technology, V. Rajaraman, PHI publication.
- Fundamental of IT, Leon and Leon, Leon Tec world.
- Introduction to Information Technology, Aksoy and Denardis, Cengage learning.
- Computers Today, Suresh K. Basandra, Galgotia Publications.

- Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.
- OFFICE 2013 in Simple Steps, Kogent Solution Inc., DremTech Press.
- Access 2010 in Simple Steps by Kogent Learning Solutions Inc.

Online Resources:

- Introduction to Computer Fundamental from W3school: https://www.w3schools.blog/computer-fundamentals-tutorial
- Introduction to MS-Word from W3school: https://www.w3schools.blog/ms-word-tutorial
- Introduction to MS-Excel from W3school: https://www.w3schools.com/excel/excel_introduction.php
- Introduction to MS-PowerPoint from W3school: https://www.w3schools.blog/powerpoint-tutorial
- Introduction to MS-Access from W3school: https://www.w3schools.com/sql/sql_ref_msaccess.asp
- Fundamentals of Computers & Information Technology (in Hindi) : https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA1-Unit-I-Fundamentals-of-Computers-Information-Technology.pdf.
- Fundamentals of Computers & Information Technology (in Hindi): https://hte.rajasthan.gov.in/dept/dte/board_of_technical_education,_rajasthan/government_polytechnic_college_hanumangarh/uploads/doc/fundamental-_final-rkd.pdf.
- Information and Computers Technology: https://cbseacademic.nic.in/web_material/doc/2014/11_ICT-IX.pdf.pdf.
- Microsoft Office (in Hindi): https://www.scribd.com/document/534988849/9-Microsoft-office-in-hindi-www-GkNotesPDF-com.
- MS-OFFICE: https://www.rgycsm.org/uploads/books/MICROSOFT-OFFICE-BOOK.pdf.
- MS-OFFICE: Hindi Notes: https://www.copaguide.com/2020/04/ms-office-topics.html.
- Microsoft Office Full Crash Course: https://www.youtube.com/watch?v=SH4oyV5AJ6A

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

Suresh Thakur

ANJEETA KUSH

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*	Semester - I	Session: 2024-2025

1	Course Code	ITGE-01P	
2	Course Title	Lab 1: MS-Office	
3	Course Type	Practical	
4	Prerequisite	*As per program*	
5	Course Learning. Outcomes (CLO)	After Completing this course, students will be able to: • Gain Practical knowledge of MS-Office. • Organize files and documents on storage devices. • Acquire knowledge of ICT and Internet applications. • Develop information technology solutions by evaluating user requirements in advance trends of IT. • Acquire knowledge of MS-Excel, MS-PowerPoint and MS-Access.	
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)

	List of Experiments	No. of Period
	Application of Information Technology 1. How to create mail in a Gmail account? Write the uses of Inbox, Sent, Outbox, Draft, Spam and Trash labels. 2. How to design Google form? Write the steps with appropriate windows. 3. How to create different student classes in Google classroom. 4. How do teachers create assignments and provide due dates, or grades in Google Classroom? 5. How do students find assignments, due dates, or grades in Google Classroom? 6. How to use social media platforms like twitter, Facebook and YouTube? 7. How to use social media platforms like Flickr, Skype, yahoo and WhatsApp? 8. How to use Google spreadsheets, Google Slides and Google forms? 9. How to share files between mobile phone and computer system/Laptop using Bluetooth. ********** **MS-Word** 1. Prepare a grocery list having four columns (Serial number, the name of the product, quantity and price) for the month of April, 06. ➢ Font specific actions for Title (Grocery List):14-pointArialfontinboldanditalics. ➢ The headings of the columns should be in12-point and bold. ➢ The rest of the document should be in10-point Times New Roman.	**30 Hrs.**

- Leave a gap of 12-points after the title.

2. Create a telephone directory.
   - The heading should be16-point Arial Font in bold.
   - The rest of the document should use10-point font size.
   - Other headings should use10-point Courier New Font.
   - The footer should show the page number as well as the date last updated.
3. Design a time-table form for your college.
   - The first line should mention the name of the collegein16-point Arial Font and should be bold.
   - The second line should give the course name/teacher's name and the department in14-pointArial.
   - Leave a gap of 12-points.
   - The rest of the document should use10-point Times New Roman font.
   - The footer should contain your specifications as the designer and date of creation.

4. XYZ Publications plan store lease an e-book design dapper your syllabus. Design the First page of the book as per the given specifications.
   - The title of the book should appearinboldusing20-pointArialfont.
   - The name of the author and his qualifications should be in the center of the page in16-point Arial font.
   - At the bottom of the document should be the name of the publisher and address in16-point Times New Roman.
   - The details of the offices of the publisher (only location) should appear in the footer.

5. Create the following one page documents.
   - Compose a note inviting friends together at your house, including a list of things to bring with them.
   - Design a certificate in landscape orientation with a border around the document.
   - Design a Garage Sale sign.
   - Make an assignment outlining your rules for your bedroom at home, using a numbered list.

6. Create the following documents:
   - A newsletter with a headline and 2 columns in portrait orientation, including at least one image surrounded by text.
   - Use a newsletter format to promote upcoming projects or events in your classroom or college.

7. Convert following text to a table, using comma as delimiter Type the following as shown (do not bold).

   Color, Style, Item
   Blue, A980, Van
   Red, X023, Car
   Green, YL724, Truck
   Name, Age, Sex
   Bob, 23, M
   Linda, 46, F
   Tom, 29, M

8. Enter the following data into a table given on the next page.

Salesperson	Dolls	Trucks	Puzzles
Kennedy, Sally	1327	1423	1193
White, Pete	1421	3863	2934
Pillar, James	5214	3247	5467
York, George	2190	1278	1928
Banks, Jennifer	1201	2528	1203
Atwater, Kelly	4098	3079	2067
Pillar, James	5214	3247	5467
York, George	2190	1278	1928
Banks, Jennifer	1201	2528	1203
Atwater, Kelly	4098	3079	2067

Add a column Region (values: S, N, N, S, S, S) between the Salesperson and Dolls columns to the given table Sort your table data by Region and within Region by Sales person in ascending order:
In this exercise, you will add a new row to your table, place the word Total at the bottom of the Sales person column, and sum the Dolls, Trucks, and Puzzles columns.

9. Wrapping of text around the image.
10. How to install MS-Office in Windows operating system.
11. How to convert word, excel and PowerPoint into pdf & pdf to word.
12. How to merge and split pdf files.

****

MS-Excel

1. Enter the Following data in Excel Sheet

REGIONAL SALES PROJECTION						
State	Qtr1	Qtr2	Qtr3	Qtr4	Qtr Total	Rate Amount
Delhi	2020	2400	2100	3000	15	
Punjab	1100	1300	1500	1400	20	
U.P.	3000	3200	2600	2800	17	
Haryana	1800	2000	2200	2700	15	
Rajasthan	2100	2000	1800	2200	20	
TOTAL						
AVERAGE						

a. Apply Formatting as follow:

Title in TIMES NEW ROMAN
FontSize-14
Remaining text-ARIAL, FontSize-10
State name and Qtr. Heading Bold, Italic with Gray Fill Color.
Numbers in two decimal places.
Qtr. Heading in center Alignment.
Apply Border to whole data.

b. Calculate State and Qtr. Total
c. Calculate Average for each quarter

d. Calculate Amount=Rate*Total.

2. Given the following worksheet

	A	B	C	D
1	**Roll No.**	**Name**	**Marks**	**Grade**
2	1001	Sachin	99	
3	1002	Sehwag	65	
4	1003	Rahul	41	
5	1004	Sourav	89	
6	1005	Harbhajan	56	

Calculate the grade of these students on the basis of following guidelines:

If Marks	**Then Grade**
>=80	A+
>= 60 and <80	A
>= 50 and <60	B
<50	F

3. Given the following worksheet

	A	B	C	D	E	F	G
1	**Salesman**	**Sales in(Rs.)**					
2	**No.**	**Qtr1**	**Qtr2**	**Qtr3**	**Qtr4**	**Total**	**Commission**
3	S001	5000	8500	12000	9000		
4	S002	7000	4000	7500	11000		
5	S003	4000	9000	6500	8200		
6	S004	5500	6900	4500	10500		
7	S005	7400	8500	9200	8300		
8	S006	5300	7600	9800	6100		

Calculate the commission earned by the salesman on the basis of following Candidates:

If Total Sales	**Then Commission**
<20000	0% of sales
> 20000 and< 25000	4% of sales
> 25000 and< 30000	5.5%of sales
> 30000 and< 35000	8%of sales
>=35000	11%of sales

The total sales are the sum of sales of all the four quarters.

4. Company XYZ Ltd. pays a monthly salary to its employees who consist of basic salary, allowances & deductions. The details of allowances and deductions are as follows:
   - HRA Dependent on Basic
     30% of Basic if Basic<=1000
     25% of Basic if Basic>1000 & Basic<=3000
     20% of Basic if Basic>3000
   - DA Fixed for all employees,30% of Basic
   - Conveyance Allowance(CA)

Rs.50/- if Basic is <=1000
Rs.75/- if Basic >1000 & Basic<=2000
Rs.100 if Basic>2000

- Entertainment Allowance (EA)
  NIL if Basic is<=1000
  Rs.100/-if Basic > 1000

Deductions

- Provident Fund
  6% of Basic
- Group Insurance Premium
  Rs.40/-if Basic is <=1500
  Rs.60/-if Basic > 1500 & Basic<=3000
  Rs.80/-if Basic>3000

Calculate the following:
Gross Salary=Basic +HRA+ DA+ CA+ EA
Total Deduction=Provident Fund + Group Insurance Premium
Net Salary=Gross Salary–Total Deduction

5. Create Payment Table for a fixed Principal amount, variable rate of interests and time in the form at below:

No. of Installments	5%	6%	7%	8%	9%
3	XX	XX	XX	XX	XX
4	XX	XX	XX	XX	XX
5	XX	XX	XX	XX	XX
6	XX	XX	XX	XX	XX

6. Use an array formula to calculate Simple Interest for given principal amounts given the rate of Interest and time

Rate of Interest	8%
Time	5Years
Principal	Simple Interest
1000`	?
18000	?
5200	?

7. The following table gives a year wise sale figure of five salesmen in Rs.

Salesman	2019	2020	2021	2022
S1	10000	12000	20000	50000
S2	15000	18000	50000	60000
S3	20000	22000	70000	70000
S4	30000	30000	100000	80000
S5	40000	45000	125000	90000

a. Calculate total sale year wise.
b. Calculate the net sale made by each salesman
c. Calculate the maximum sale made by the salesman
d. Calculate the commission for each salesman under the condition.

>> If total sales > 4, 00,000 give 5% commission on total sale made by the salesman.

>> Otherwise give 2% commission.

e. Draw a bar graph representing the sale made by each salesman.
f. Draw a pie graph representing the sale made by a salesman in 2000.

8. Enter the following data in Excel Sheet

PERSONAL BUDGET FOR FIRST QUARTER

Monthly Income(Net): 1,475

EXPENSES	JAN	FEB	MARCH QUARTER TOTAL	QUARTER AVERAGE
Rent	600.00	600.00	600.00	
Telephone	48.25	43.50	60.00	
Utilities	67.27	110.00	70.00	
Credit Card	200.00	110.00	70.00	
Oil	100.00	150.00	90.00	
AV to Insurance	150.00			
Cable TV	40.75	40.75	40.75	
Monthly Total				

a. Calculate Quarter total and Quarter average.
b. Calculate Monthly total.
c. Surplus=Monthly income-Monthly total.
d. What would be the total surplus if monthly income is 1500.
e. How much does the telephone expense for March differ from quarter average?
f. Create a 3D column graph for telephone and utilities.
g. Create a pie chart for monthly expenses.

9. Enter the following data in Excel Sheet

TOTAL REVENUE EARNED FOR SAM'S BOOK STALL

Publisher Name	1997	1998	1999	2000	Total
A	Rs. 1,000.00	Rs. 1100.00	Rs. 1,300.00	Rs. 800.00	
B	Rs. 1,500.00	Rs. 700.00	Rs. 1,000.00	Rs. 2,000.00	
C	Rs. 700.00	Rs. 900.00	Rs. 1,500.00	Rs. 600.00	
D	Rs. 1,200.00	Rs. 500.00	Rs. 200.00	Rs. 1,100.00.	

a) Compute the total revenue earned.
b) Plot the line chart to compare the revenue of all publishers for 4 years.
c) Chart Title should be Total Revenue of Sam's Book stall(1997-2000)'
d) Give appropriate categories and value axis title.

10. Generate 25 random numbers between 0 & 100 and find their sum, average and count. How many no. are in the range 50-60.

****

MS-Power Point

1. Do the following task:
   - Start a new blank presentation
   - Your first Slide is going to be a Title Slide
   - Write the Text as in the preview below:

- Lighthouse Co Ltd
- Make the Font of "Lighthouse" Arial Black and size 88

- Insert a second slide this should be with a layout of Bulleted List
- Write the Text as in preview below
- [Title]: Lighthouse Co Ltd
- [Body]:
  i. Mission Statement
  ii. Company Objectives
  iii. Management Team
  iv. Employees
  v. Sales

Make the Font Color of the Points to Green
Insert a third slide that should be an Organization Chart.
Include the following people in the chart:

a. David Brent, General Manager
b. Tim Canterbury, Head of Sales
c. Gareth Keenan, Assistant to the General Manager
d. Dawn Tinsley , Human Resources Manager

Add a fourth slide and this should be a Table Chart.

The chart should look like the following:

New Products	**Discontinued Products**
Digital Cameras	8mm Cameras
Ultra Slim Video Camera	8x Zoom Video Camera
25" Plasma TVs21"	Black and White TVs
DVD Recorders	Video Players
7.1 Dolby Surround Systems	2 channel stereo systems

- Make the titles New Products and Discontinued Products with a shadow effect and centered in the cell. Widen columns to fit Text as above.
- The Fifth slide should be a Chart slide. The chart should be a bar chart, and include the following data must be used to form the chart:

	January	February	March	April
TVs	20	27	90	75
DVDs	30	38	34	31
Wifi equipment	45	46	45	43
Video Recorders	25	29	15	40

- Change the colours of the chart so that the series of bars are red, yellow, pink, and green.
- Add a light coloured background to all slides in the presentation.
- Add also Transition effects between each slide and also different effects for all text and pictures in the presentation.
- Reverse the order of the second and third slides
- Save the presentation as Light House Ltd.

2. Do the following:
   Load your Presentation Application and start a new presentation
   - The first slide is a Title Slide. Select the appropriate layout and enter the title: **Annual Food Fair**
   - Add the subtitle: .**A Celebration of Eating**
   - Insert a small, red circle at the bottom right of the title slide.

- Change the font color for the whole title and subtitle to blue, and apply a text shadow effect just to the words **Food** and **Fair**
- Insert a second slide to the presentation, selecting a layout appropriate for a series of bullet points, and using the title: **The Menu**. Enter the following text:
  i. Chocolate Desserts
  ii. Cakes and Puddings
  iii. Roast Meals
  iv. Using Pasta Creatively

- Change the line spacing for these bullet points to 1.5 lines.
- Increase the font size for the words **The Menu** in the title.
- Add a footer with your name and the text: **Food Fair** so they both appear on every slide, and number all the slides. (Make sure the number is not obscured by the red circle on the title slide)
- Insert a third slide, which is to be an organization chart. Use the title **Meet The Team**. Enter: **Maggie Peet, Manager** at the top of the chart, and show the following three as reporting to Maggie Peet: **Brian Webb, Bookings**; **Janine Newton, Publicity; Gregg Brown, Accounts**
- Embolden the text in the title of the third slide, and change the font to Arial.
- Apply a light coloured background to all the slides in the presentation
- On the third slide, insert an image suitable for the topic of food from an image library. Reduce the size of the image and place it where it will not interfere with text.
- Save the presentation as **foodfair**.
- Print the presentation with three slides per page, and close the presentation.

3. Do the followings:
   - Load your Presentation Application and start a new presentation
   - The first slide is a Title Only Slide. Select the appropriate layout and enter the title: **Cook Family Cruises**.
   - Add a small blue rectangle at the top left of this slide.
   - Change the font color for the whole title to red, and apply a text shadow effect just to the word **Cruises**.
   - Insert a second slide to the presentation, selecting a layout appropriate for a series of bullet points, and using the title: **Our Itinerary**. Enter the following text:
     a. Canary Islands
     b. Mediterranean
     c. Greek Islands
   - Change the line spacing for these bullet points to 2 lines. Increase the font size of the word **Itinerary** in the title. Add a footer with your name and the text: **Cruise Information** so they both appear on every slide, and number all the slides.
   - Insert a third slide, which is to be a graph. Use the title **Our Market Share**. Use the following data to produce a pie chart: Cook 54%; Jackson 28%; Wilson 12%; Bennett 5%
     Embolden the text in the title of the third slide, and change the font to Arial.
   - Apply a different background to each slide in the presentation.
   - On the third slide, insert an image suitable for the topic of holidays from an image library. Reduce the size of the image and place it where it will not interfere with text.
   - Add a 4-slide containing nothing but the text: **Travel with us for less!!**
   - Save the presentation as a holiday.
   - Print the presentation with 4 slides per page, and close the presentation.
4. Creating an animation looks like the leaf is falling in a tree.

5. Creating an animation looks like demolishing a world trade center in America.

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MS-Access

1. Create a database named "college" and perform the following tasks:
   A. Create a table named "student" having following fields:
      Class, Roll no and Name with these Information i.e., Field Name, Data type and Description
   B. Fill at least 5 records.
   C. Prepare a query to display all records and Name should be in ascending order.
2. Create the employee table in MS-Access with the referential integrity-foreign key.

Note: This is a tentative list; the teachers' concern can add more experiment as per requirement.

Keywords	*Information Technology (IT), Information and Communication Technology (ICT), G-Suite, MS Word, MS Excel, MS Power Point, MS-Access.*

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

PART-C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
- Fundamentals of Information Technology, Chetan Shrivastava, Kalyan Publishers.
- Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
- Computer Fundamentals and Office Automation, Dr. Santosh Kumar Miri, Iterative International Publisher IIP.
- Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
- Fundamentals of Information Technology, Alexis Leon and Mathews Leon, Vikash Publication.

Reference Books Recommended:

- Introduction to Information Technology, V. Rajaraman, PHI publication.
- Fundamental of IT, Leon and Leon, Leon Tec world.
- Introduction to Information Technology, Aksoy and Denardis, Cengage learning.
- Computers Today, Suresh K. Basandra, Galgotia Publications.
- Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.
- OFFICE 2013 in Simple Steps, Kogent Solution Inc., DremTech Press.
- Access 2010 in Simple Steps by Kogent Learning Solutions Inc.

Online Resources:

- Introduction to Computer Fundamental from W3school: https://www.w3schools.blog/computer-fundamentals-tutorial

- Introduction to MS-Word from W3school: https://www.w3schools.blog/ms-word-tutorial
- Introduction to MS-Excel from W3school: https://www.w3schools.com/excel/excel_introduction.php
- Introduction to MS-PowerPoint from W3school: https://www.w3schools.blog/powerpoint-tutorial
- Introduction to MS-Access from W3school: https://www.w3schools.com/sql/sql_ref_msaccess.asp
- Fundamentals of Computers & Information Technology (in Hindi) : https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA1-Unit-I-Fundamentals-of-Computers-Information-Technology.pdf.
- Fundamentals of Computers & Information Technology (in Hindi): https://hte.rajasthan.gov.in/dept/dte/board_of_technical_education,_rajasthan/government_polytechnic_college_hanumangarh/uploads/doc/fundamental-_final-rkd.pdf.
- Information and Computers Technology: https://cbseacademic.nic.in/web_material/doc/2014/11_ICT-IX.pdf.pdf.
- Microsoft Office (in Hindi): https://www.scribd.com/document/534988849/9-Microsoft-office-in-hindi-www-GkNotesPDF-com.
- MS-OFFICE: https://www.rgycsm.org/uploads/books/MICROSOFT-OFFICE-BOOK.pdf.
- MS-OFFICE: Hindi Notes: https://www.copaguide.com/2020/04/ms-office-topics.html.
- Microsoft Office Full Crash Course: https://www.youtube.com/watch?v=SH4oyV5AJ6A

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

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*	Semester - II	Session: 2024-2025

1	Course Code	**ITGE-02T**		
2	Course Title	**Programming in C++**		
3	Course Type	**DGE (Discipline Generic Elective)**		
4	Prerequisite	***As per program***		
5	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the fundamentals of object oriented programming. • Write programs related to concept of object oriented program • Define functions, class and to create own Libraries. • Write programs for file handling. • Develop small programs to solve real world problems.		
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 and Programming Concepts :** Definition of Program, Source file, Object file, Executable file, Header file, Language Translator- Assembler, Interpreter, Compiler, Testing, Debugging, Linker and Loader, Algorithms, Flow Charts, History of C language, Structure of C program , C Tokens : Identifiers, Keywords, Constants, Variables, Operators, Data Types, Control structure: Conditional and looping statements, Operator Precedence and Associativity, Array and its types, Pointer, Functions : Standard Library and User defined functions, function prototype, Call by value and Call by reference, recursive functions, String functions.	12
II	**Introduction to Object Oriented Programming:** Concept of object oriented programming, Features of C++, Structure of C++ program, Data types, structure, class and objects, Access Specifiers: Private, Public, Protected, inline functions, static data and static functions. **Constructor:** Default constructor, Copy constructor, Parameterized constructor, Destructor.	11
III	**Inheritance and Polymorphism**: Definition, Concept of base and derived class, Types of Inheritance: Single, Multilevel, Multiple, Hierarchical and Hybrid Inheritance. Polymorphism: Definition, Compile time polymorphism: Function overloading, Operator overloading, constructor overloading, Runtime polymorphism: Virtual Function, pure virtual function. Inline function, friend function, friend class.	11
IV	**Input-Output and File Handling :** I/O classes, File and Stream classes, Char I/O, String I/O, Object I/O, File Pointer, Opening and Closing file. **Exception Handling and Standard Template Library:** Definition, Exception basics, try, catch and throws keywords, Template.	11
Keywords	*Token, Identifier, Keyword, Array, Function, Class, Object, Polymorphism, Inheritance, Constructor, Template.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Peter Juliff, Program Design, PHI Publications.
- Yashwant Kanetkar, Let us C: BPB Publications.
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw Hill

Reference Books Recommended:

- Y. Kanetkar, Let us C++, B.P.B Publication .
- E. Balaguruswamy, Programming in C++, Tata McGraw Hill.
- R. Kumar, Object Oriented Programming with C++, Prakhar Publication(Hindi)
- Dhupiya, Lakhyani , C++ Programming Alka Publications, Ajmer (Paperback, Dhupiya, Lakhyani)(Hindi)

Online Resources:

- Introduction to C and C++ from SWAYAM/NPTEL
  https://onlinecourses.nptel.ac.in/noc22_cs103/preview
  https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2
- Constant and Inline Function through NPTEL:
  https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10
- Pointer and Reference NPTEL
  https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12
- Function Overloading NPTEL
  https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=13
- Operator Overloading NPTEL
  https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17
- Dynamic Memory Management NPTEL
  https://www.youtube.com/watch?v=lkFK2X6qIc0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18
- Class and Object NPTEL
  https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- Access Specifiers NPTEL
  https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=22
- Constructor and Destructor NPTEL
  https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- C++ different topics from W3School
  https://www.w3schools.com/CPP/default.asp
- C++ different topics from Javatpoint
  https://www.javatpoint.com/cpp-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:

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction			
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*		Semester - II	Session: 2024-2025
1	Course Code	ITGE-02P	
2	Course Title	Lab 2: Programming in C++	
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: • Understand the fundamental programming concepts and methodologies which are essential to create good C++ programs. • Code, test, and implement a well-structured, robust computer program using the C++ programming language. • Write reusable modules (collections of functions). • Understand design/implementation issues involved with variable allocation and binding, control flow, types, subroutines, parameter passing. • Develop an in-depth understanding of functional, logic, and object-oriented programming paradigms.	
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. Write a program in C++ for addition of two numbers using float data type. 2. Write a program in C++ to find the biggest number between two numbers. 3. Write a program in C++ to find the factorial value of any entered number using do – while loop. 4. Write a program in C++ for various arithmetic operations using switch case statements. 5. Write a program in C++ for Multiplication of two 3X3 matrices. 6. Write a program in C++ to store five books of information using structure. 7. Write a program in C++ to store six employee information using union. 8. Write a program in C++ to calculate simple interest using call by value and call by reference method. 9. Write a program in C++ to find the sum and average of five numbers using class and objects. 10. Write a program in C++ to multiply two numbers using private and public member functions. 11. Write a program in C++ to print structure like this using scope resolution operator 1 1 2 1 2 3 1 2 3 4 1 2 3 4 5 12. Write a program in C++ for constructor and Destructor. 13. Write a program in C++ for multiple inheritance.	**30**

	14. Write a program in C++ for operator overloading. 15. Write a program in C++ for friend class and friend function. 16. Write a program in C++ for virtual function and virtual class. 17. Write a program in C++ for Exception Handling. 18. Write a program in C++ to open and close a file using file Handling. 19. Given two ordered arrays of integers, write a program to merge the two-arrays to get an ordered array. 20. WAP to display Fibonacci series (i) using recursion, (ii) using iteration 21. WAP to calculate Factorial of a number (i) using recursion, (ii) using iteration 22. WAP to calculate GCD of two numbers (i) with recursion (ii) without recursion. 23. Create a Matrix class using templates. Write a menu-driven program to perform following Matrix Operations (2-D array implementation): a) Sum b) Difference c) Product d) Transpose 22. Create the Person class. Create some objects of this class (by taking information from the user). Inherit the class Person to create two classes Teacher and Student class. Maintain the respective information in the classes and create, display and delete objects of these two classes (Use Runtime Polymorphism). 24. Create a class Triangle. Include overloaded functions for calculating area. Overload assignment operator and equality operator. 25. Create a class Box containing length, breadth and height. Include following methods in it: a) Calculate surface Area b) Calculate Volume c) Increment, Overload ++ operator (both prefix & postfix) d) Decrement, Overload -- operator (both prefix & postfix) e) Overload operator == (to check equality of two boxes), as a friend function f) Overload Assignment operator g) Check if it is a Cube or cuboid 26. Create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file. 27. Write a program to retrieve the student information from the file created in the previous question and print it in the following format: Roll No. Name Marks 28. Copy the contents of one text file to another file, after removing all whitespaces. 29. Write a program for exception handling. 30. Write a program to insert data into file and to display it. **Note:** Concerned teacher can add additional experiment as per requirement.	
Keywords	*Array, Function, Structure, union, matrix, constructor, destructor, inheritance.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Peter Juliff, Program Design, PHI Publications.
- Yashwant Kanetkar, Let us C: BPB Publications.
- E. Balaguruswamy, Programming in ANSI C, Tata McGraw Hill

Reference Books Recommended:

- Y. Kanetkar, Let us C++, B.P.B Publication .

- E. Balaguruswamy, Programming in C++, Tata McGraw Hill.
- R. Kumar, Object Oriented Programming with C++, Prakhar Publication(Hindi)
- Dhupiya, Lakhyani , C++ Programming Alka Publications, Ajmer (Paperback, Dhupiya, Lakhyani)(Hindi)

Online Resources:

- Introduction to C and C++ from SWAYAM/NPTEL
  https://onlinecourses.nptel.ac.in/noc22_cs103/preview
  https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=2
- Constant and Inline Function through NPTEL:
  https://www.youtube.com/watch?v=pX6LufLso2M&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=10
- Pointer and Reference NPTEL
  https://www.youtube.com/watch?v=GtsBZ5e1-cE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=12
- Function Overloading NPTEL
  https://www.youtube.com/watch?v=uJGmGAShHeU&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=13
- Operator Overloading NPTEL
  https://www.youtube.com/watch?v=0jpOwe4d-FE&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=17
- Dynamic Memory Management NPTEL
  https://www.youtube.com/watch?v=lkFK2X6qIc0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18
- Class and Object NPTEL
  https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- Access Specifiers NPTEL
  https://www.youtube.com/watch?v=6ki_W7cXdM0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=22
- Constructor and Destructor NPTEL
  https://www.youtube.com/watch?v=wtuks_f3vP4&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=24
- C++ different topics from W3School
  https://www.w3schools.com/CPP/default.asp
- C++ different topics from Javatpoint
  https://www.javatpoint.com/cpp-tutorial

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

ANJELITA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

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

1	Course Code	**ITSE-01**		
2	Course Title	**Data Structure**		
3	Course Type	**DSE (Discipline Specific Elective)**		
4	Prerequisite	*As per program*		
5	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the fundamentals and applications of data structure • Create the algorithms for the problem solving • Understanding about the data management in computer memory • Apply the stack, Queue, Lists, Trees and Graphs in various problem solving. • Apply the suitable searching and sorting method according to the nature of the problem.		
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 and Basic Concepts:** Introduction, Fundamentals of Algorithms, Data types: Primitive, Non-Primitive Absent Data Type (ADT), Classification of Data Structure: Linear and Nonlinear Data Structure. **Array:** Arrays and its types, Memory allocation and address calculations of Array, Sparse Array. **Linked List:** Types of Linked List and various Operations Like INSERT, DELETE, TRAVERSE. Introduction and Application of Stack and Queue.	15
II	**Stack:** Definition, Operations PUSH, POP, Implementations using Array and Linked list, Applications of Stack: Infix, Prefix, Postfix representation and conversion using Stack, Postfix expression evaluation using Stack, Recursion using Stack. **Queue:** Definition, Types of Queues: Priority Queue, Circular queue, Double Ended Queue, operations of Queue INSERT, DELETE, TRAVERSE, Implementation Queue using Array and Linked list, Applications of Queue.	15
III	**Tree:** Definition of Trees and their types, Binary trees, Properties of Binary trees and operations Insertion, deletion, searching and traversal algorithm: preorder, post order, in-order traversal, Binary Search Trees, Implementations, AVL Trees. **Graph:** Definition of Graph and their types, Adjacency and Incident (matrix & linked list) Representation of graphs, Graph Traversal – Breadth first Traversal, Depth first Traversal, Connectivity of Graphs; Weighted Graphs, Shortest Path Algorithm, Spanning Tree, Minimum Spanning Tree, Kruskal's and Prim's Algorithms.	15
IV	**Sorting Methods:** Types of Sorting Selection Sort, Insertion Sort, Bubble Sort, Quick Sort, Merge Sort, Radix Sort. **Searching**: Linear search, Binary search.	15
Keywords	*Data, Abstract Data Type (ADT), Array, Linked List, Stack, Queue, Tree, Graph, Searching, Sorting.*	

Signatures of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJU

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Michael T. Goodrich, Data Structures and Algorithms in C++, Wiley
- Horowitz and Sahani, Fundamentals of Data Structures, Computer Science Press.

Reference Books Recommended:

- Alfred V. Aho, Data structures and Algorithms, John E. Hopcroft and J.E. Ullman.
- Jean Paul Trembley and Paul Sorenson, An Introduction to Data Structures with Applications, TMH, International Student Edition
- R. Kruse, Leung & Tondo, Data Structures and Program Design in C, PHI publication, 2nd Edition

Online Resources:

- NPTEL YouTube Channel: Data Structure Complete course https://youtube.com/playlist?list=PLc2MoXNv7E4mtsPlnn9BnTOENXsGyoDgR&si=aAYaVZ-vWfeuhFEO
- NPTEL YouTube Channel: Introduction to Data Structure https://www.youtube.com/watch?v=zWg7U0OEAoE&list=PLBF3763AF2E1C572F&index=1
- NPTEL YouTube Channel: Stacks https://www.youtube.com/watch?v=g1USSZVWDsY&list=PLBF3763AF2E1C572F&index=2
- NPTEL YouTube Channel: Queues and linked list https://www.youtube.com/watch?v=PGWZUgzDMYI&list=PLBF3763AF2E1C572F&index=3
- NPTEL YouTube Channel: Trees https://www.youtube.com/watch?v=tORLeHHtazM&list=PLBF3763AF2E1C572F&index=6
- NPTEL YouTube Channel: Graphs https://www.youtube.com/watch?v=9zpSs845wf8&list=PLBF3763AF2E1C572F&index=24
- W3schools Data Structure Reference DSA Tutorial (w3schools.com)

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

Suresh Thakur

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*	Semester – IV	Session: 2024-2025

1	Course Code	**ITSE-02**	
2	Course Title	**Internet and E-Commerce**	
3	Course Type	**DSE (Discipline Specific Elective)**	
4	Prerequisite	*As per program*	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the basic terminologies of the Internet. • Assess the impact of internet and internet technology in a business electronic commerce and electronic business. • Be familiar with different e-commerce theories and terminology. • Learn strategies for e-commerce and electronic payment systems. • Think Critically and Analytically on New Successful Business Ideas.	
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	**Internet and its Application**: History and Evolution of internet, Internet & intranet, Internet applications, Domain Name, IP address, web browser, web server, web page, web site, Internet service providers, Connectivity: dial up, leased line, VSAT. Conferencing, Searching, downloading, uploading files on Internet, Search Engines, E-Mail: E-Mail Address, Email Message Components, Email Header, Advantages and Disadvantages of E-Mail, E-mail protocols: SMTP, POP-3, IMAP.	15
II	**FTP and Telnet**: Introduction to File Transfer Protocol (FTP), Types of FTP servers (including anonymous), Telnet protocol, Telnet client, Terminal emulation. Usenet and Internet relay chat, Web publishing tool, Website planning, Website Hosting, Multiple sites on one server, Maintaining a website, WWW servers, HTTP & URLs, Registration of website on search engines, maintenance of website.	15
III	**E-Commerce and Model:** Definition, The scope of E-Commerce, History of E-Commerce, E-Business Models: B2B, B2C, C2C, C2B, Environment of E-Commerce, Dimensions of E-Commerce, Ethical Issues, Electronic Data Interchange, Value Chain and Supply Chain, E-Commerce Marketing, E-Commerce Strategy, E-Commerce Infrastructure, benefits and limitations of E-Commerce.	15
IV	**E-payment System and E-Security:** Models and methods of e-payments (Debit Card, Credit Card, Smart Cards, e-money, UPI payment), digital signatures (procedure, working and, legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting), risks involved in e-payment. E-Security Network and Web Site Risk for E-Business, Information Technology ACT 2000 and its Highlights Related to E-Commerce.	15
Keywords	*Internet, FTP and Telnet, E-Commerce, E-Payment Systems, Online Business.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Teach Yourself Internet In 24 Hours : Techmedia.
- Internet Complete : BPB Publication
- Kenneth C. Laudon and Carlo Guercio Traver, E-Commerce, Pearson Education.
- David Whiteley, E-commerce: Strategy, Technology and Applications, McGraw Hill Education.

Reference Books Recommended:

- Bharat Bhaskar, Electronic Commerce: Framework, Technology and Application, 4th Ed., McGraw Hill Education.
- PT Joseph, E-Commerce: An Indian Perspective, PHI Learning.
- KK Bajaj and Debjani Nag, E-commerce, McGraw Hill Education.
- TN Chhabra, E-Commerce, Dhanpat Rai & Co.
- Sushila Madan, E-Commerce, Taxmann
- TN Chhabra, Hem Chand Jain, and Aruna Jain, An Introduction to HTML, Dhanpat Rai & Co.

Online Resources:

- Internet and its Application
  https://www.javatpoint.com/internet
- Internet introduction
  https://www.youtube.com/watch?v=YOXwcbwSEUo&list=PL04D5787E247DC324
- Ecommerce lecture series-Complete
  https://www.youtube.com/watch?v=hRdepe_JJ80&list=PLUVwrWr8kmTisGDzotaG_KnDJZfNYBPy8
- Electronic Payment System
  https://www.youtube.com/watch?v=Q5HdOaiNYps&list=PLb8zN-8LXfQAkHpezdSvGXFyxiRD5fRPE
- https://ebooks.inflibnet.ac.in/lisp5/chapter/internet-background-basic-services-and-features/
- https://www.tutorialspoint.com/internet_technologies/pdf/internet_quick_guide.pdf
- Electronic Commerce : https://www.youtube.com/watch?v—xKJjyn8DaAw
- Technology used in E-Commerce : https://www.yoiitube.com/watch?v=cPVwPQCsROc
- E-Commerce : https://www.tutoria1spoint.com/e commerce/index.htm
- E-Commerce : https://egyankosh.ac.in/handle/123456789/72073

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

(Suresh Thakur)

ANJEETA KURY

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*	Semester – V	Session: 2024-2025

1	Course Code	**ITSE-03**
2	Course Title	**Information and Network Security**
3	Course Type	**DSE (Discipline Specific Elective)**
4	Prerequisite	*As per program*
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Formulate information security governance, and related legal and regulatory issues. • Device how threats to an organization are discovered, analyzed, and dealt with. • Understand a variety of generic security threats and vulnerabilities, and identify and analyze particular security problems for a given application. • Understand various protocols for network security to protect against the threats in a network • Know the fundamentals of network and information security issues, laws, and various security technologies which can be applied in the workplace.
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	**Information Security:** Introduction to information security, The need for security, CIA triad (Confidentiality, integrity, and availability), Principles of Security, Types of Attacks, Cryptographic Techniques: Plain Text and Cipher Text, Substitution Techniques, Transposition Techniques, Encryption and Decryption, Steganography, Key Range and Key Size, Possible Types of Attacks.	15
II	**Computer-based Symmetric Key Cryptographic Algorithms:** Algorithm Types and Modes, An overview of Symmetric Key Cryptography, DES, International Data Encryption Algorithm (IDEA), RC5, Blowfish, AES, Differential and Linear Cryptanalysis.	15
III	**Computer-based Asymmetric Key Cryptography:** Brief History of Asymmetric Key Cryptography, An overview of Asymmetric Key Cryptography, The RSA algorithm, Symmetric and Asymmetric Key Cryptography Together, Digital Signatures, Knapsack Algorithm.	15
IV	**Network Security Protocols and Different Security:** Secure Socket Layer (SSL) and Transport Layer Security (TLS), PCT, IPsec and Virtual Private Networks (VPNs), Secure Shell (SSH) and Secure File Transfer Protocol (SFTP), Different Security: Web Security, Email Security, Cloud Security, Social Media Security, Smartphone Security.	15
Keywords	*Information Security, Network Security, public Key, Private key, Network Security Protocols.*	

Signature of Convener & Members of CBoS:

Chairman

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Cryptography and Network Security: Principles and Practice 5th Edition, William Stallings, Pearson,2010
- "Network Security: Private Communication in a Public World" by Charlie Kaufman, Radia Perlman, and Mike Speciner.
- "Principles of Computer Security: CompTIA Security+ and Beyond" by Wm. Arthur Conklin, Greg White, Dwayne Williams, Chuck Cothren, and Roger L. Davis.
- Cryptography and Network Security – by Atul Kahate – TMH.

Reference Books Recommended:

- Cryptography and Network security, Behrouz A. Forouzan , DebdeepMukhopadhyay, Mcgraw Hill Education, 2 nd Edition, 2011
- Cryptography and Network Security, Atul Kahate, Tata McGraw-Hill, 2013. 2)
- Cryptography and Network, Behrouz A Fourouzan, Debdeep Mukhopadhyay, 2nd Edition,TMH,2011
- Cyber Security Operations Handbook – by J.W. Rittiaghouse and William M.Hancok – Elseviers.

Online Resources:

- *Network Defense Essentials:* https://www.eccouncil.org/academia/network-defense-essentials-nde/
- Cyber Security for Beginners: https://heimdalsecurity.com/pdf/cyber_security_for_beginners_ebook.pdf
- Cyber Awareness: https://mdu.ac.in/UpFiles/UpPdfFiles/2021/Jun/4_06-13-2021_15-34-38_e-BOOK%20Cyber%20Security%20Awareness%20Hand%20Book%2010%20june%202021.pdf
- Cyber Security Operations Handbook – by J.W. Rittiaghouse and William M.Hancok – Elseviers, https://shop.elsevier.com/books/cybersecurity-operations-handbook/rittinghouse-phd-cism/978-1-55558-306-4
- Types of internet security protocols: https://www.geeksforgeeks.org/types-of-internet-security-protocols/
- Fundamental of Cyber Security by Dr. Jitendra Pandey: http://www.uou.ac.in/sites/default/files/slm/FCS.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 RUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART-A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*	Semester – VI	Session: 2024-2025

1	Course Code	**ITSE-04**
2	Course Title	**Introduction to Artificial Intelligence**
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 various searching techniques, constraint satisfaction problems and example problems- game playing techniques. • Apply techniques to solve the AI problems. • Provide a strong foundation of fundamental concepts in Artificial Intelligence. • Provide a basic exposition to the goals and methods of Artificial Intelligence. • Understand real world applications of AI.
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:** Overview of Artificial Intelligence (AI), Foundations of AI, Areas and Applications of AI in various domains, AI Agents: Meaning, Types, Environments, and examples.	15
II	**Problem Solving:** Problem Solving as State Space Search, Production System, Some AI Classical Problems: Water-Jug Problem, Cannibal-Missionaries Problem, Tower of Hanoi, Tic-Tac-Toe, 8-Puzzle Problem, Search Techniques: Breadth First Search, Depth-First Search, Hill-Climbing, Best-First Search, A* Algorithms.	15
III	**AI Programming languages:** Introduction to LISP, Basic list manipulation functions, Input/output and local variables, Lists and Arrays, simple program in LISP, Introduction to PROLOG.	15
IV	**Knowledge Representation:** What is knowledge?, Approaches and issues, Knowledge representation techniques: Frame, Conceptual dependency, Semantic Net, Scripts etc., Propositional Logic, First order, Propositional Logic (FOPL), Conversion to clausal form, Inference rules, Resolution principal.	15
Keywords	*Artificial Intelligence (AI), AI Agent, State Space, Production System, LISP, PROLOG, Knowledge Representation, Semantic Net, Propositional Logic.*	

Signature of Convener & Members of BoS:

Dr. H.S. Hota
chairman

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

1. Introduction to Artificial Intelligence and Expert Systems, Dan W. Patterson, PHI Publication.
2. Artificial Intelligence, Elaine Rich and Kevin Knight TMH publication.

Reference Books Recommended:

3. Artificial Intelligence and machine learning, Vinod Chandra S.S., Anand Hareendrn S., PHI learning private Ltd.
4. Foundations of Artificial Intelligence and Expert Systems, Macmillan Series in Computer Science, V.S. Jankiraman, K. Sarukesi and P. Gopala Krishnan.

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

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
Sunil
(Suresh Thakur)
ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			**Semester - VII**	**Session: 2024-2025**
1	Course Code	**ITSE-05**		
2	Course Title	**Computer System Architecture**		
3	Course Type	**DSE (Discipline Specific Elective)**		
4	Prerequisite	*As per Program*		
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Understand the architecture and functioning of computer systems at the hardware level. • Analyze the Instruction Set Architecture (ISA) • Understand design, Implementation and Analysis of data path for instruction execution. • Understand the functioning of the CPU. • Understand the concept of parallel processing with their applications. • Understand the communication between the peripheral devices and CPU. • Explore the concepts of Memory Organization. • Understand the concept of multiprocessing. • Design the basic computer system Architecture.		
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	**Fundamentals Of Basic Computer Organization And Design:** Introduction of digital components, register and its types(DR,AR,AC,IR,PC,TR,INPR,OUTR), register transfer and register transfer language, microoperations and its types, common bus system for register and memory organization, computer instruction, basic format of instruction, types of instruction according addressing field (zero, one, two, three addressing), types of instruction (MRI,NMRI), addressing modes, instruction cycle and its flowchart, types of control unit(hardwired and microprogrammed control unit), design of control unit in basic computer.	15
II	**Central Processing Unit and Parallel Processing Techniques:** Introduction to CPU, general register organization, stack organization (register stack, memory stack), application of stack organizations, CPU instructions (data transfer instruction, data manipulation instruction, program control instructions), RISC and CISC instructions, interrupts and its types, interrupt cycle. Flynn's classification of computers, Parallel processing techniques (pipeline processing, vector processing, array processing), pipeline processing concept, types of pipelines and its application, speedup ratio of a pipeline, vector processing concept and its applications, concept of array processing and its applications.	15
III	**Input – Output Organization:** Introduction to peripheral devices, input-output interface and its designing, Modes of data transfer (synchronous and asynchronous data transfer), controls in asynchronous data transfer (strobe control and handshaking control), modes of data transfer (programmed i/o, interrupt-initiated i/o and direct memory access), input-output processor.	15
IV	**Memory Organization and Multiprocessor Architecture:** Memory hierarchy, main memory and its organization (RAM and ROM Chips, memory address map, memory connections to CPU), auxiliary memory, associative memory, concept of cache memory, cache memory mapping techniques (associative mapping, direct mapping, set-associative mapping), cache coherence problem and its solution, introduction to multiprocessors, interconnection structures of multiprocessor-based systems, inter-processor communication and synchronization.	15

Keywords	Registers, micro-operation, instruction, control unit, instruction cycle, interrupt cycle, CPU, stack, parallel processing, pipeline processing, vector processing, array processing, asynchronous data transfer, DMA, RAM, ROM, cache memory, IOP, multiprocessor.

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- M. Morris Mano, Computer System Architecture, 3e, Pearson Education.
- B. Ram Sanjay Kumar, Computer Fundamentals Architecture and Organization , 5e, New Age International Publishers.

Reference Books Recommended:

- William Stalling, Computer Organization & Architecture, 11e, Pearson.
- Jyotsna Sengupta, Fundamentals of Computer Organization and Architecture, Deep & Deep Publications.
- Amit Kumar Mishra, A Textbook of Computer Architecture, Katson Books.

Online Resources:

- NPTEL YouTube Channel: Online Lecture Series on Computer Architecture
  https://youtube.com/playlist?list=PL59E5B57A04EAE09C&si=WUP8O10Y6ZrIeu-i
  https://youtube.com/playlist?list=PL1A5A6AE8AFC187B7&si=JmlOO3rT9NGSMkmN
  https://youtube.com/playlist?list=PLgHucKw979AvcnTpPNZMZyORdL5HvTr9m&si=PqOMY-sh6tCuzPXA
- NPTEL Portal : Online Lecture Computer Architecture and Organization
  NPTEL :: Computer Science and Engineering – NOC :Computer architecture and organization

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

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			Semester - VII	Session: 2024-2025
1	Course Code	**ITSE-06T**		
2	Course Title	**Mobile Application Development**		
3	Course Type	**DSC (Discipline Specific Elective)**		
4	Pre-requisite	*As per program*		
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Apply general programming knowledge in the field of developing mobile applications. • Develop and deploy mobile applications into different hosting services. • Interact between user interface and underlying application. • Understand the full life cycle development of mobile apps. • Plan and carry out design work including developing a prototype that can be evaluated with a specified user group.		
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 Mobile Applications:** History of Android, Android Features, Android Versions, Fundamentals: Basic Building blocks, Activities, Intents, Services, Broadcast Receivers, Intent Filters and Activity Stack. **Android Development:** Development IDE: Android Studio, Eclipse; Android Virtualization Framework, Creating Android Virtual Device (AVD), System Images in AVD, creating a Hardware Profile in AVD, Creating an Emulator Skin, Creating and Running a Simple Hello World Program.	12
II	**Basic UI Design:** Styles & Themes, Form widgets, Text Fields, Layouts: Relative Layout Table Layout, Frame Layout, Linear Layout, Nested layouts (dip, dp, sip, sp versus px), styles.xml, Drawable Resources for Shapes, gradients (selectors), Style attribute in the Layout File, Alert Dialogs & Toast, Time and Date, Images and media.	11
III	**Android Interface:** View and Notifications: creation and display; Menus: Options menu, Context menu, Pop-up Menu; Input Controls: Buttons, Text Fields, Checkboxes, Alert Dialogs, Spinners, Rating bar, Progress bar, Android Threads and Thread Handlers, Content Providers, Android File System, and Databases (SQLite, Firebase).	11
IV	**Messaging and Location-Based Services:** Sending SMS Messages Programmatically, Getting Feedback After Sending the Message, Receiving and Sending Email, Introduction to Location-based service, Configuring an Android Emulator for Location-Based Services, Geocoding and Map-Based Activities, Different Types of Permission in Android, Android Connectivity, Different types of Sensors, Android App Testing, Android App Deployment.	11
Keywords	*Android Studio, Eclipse, Virtualization, Debugging, Android Layout, Android UI Design, Android Menus, Toast, Spinners, Threads, Geocoding, Sensor, Android Connectivity, Android App Testing.*	

Signature of Convener & Members of CBoS:

Dr H.S. Hota
chairman

(Sumit Thakur)

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Bill Phillips, Chris Stewart, Brian Hardy, and Kristin Marsicano, Android Programming: The Big Nerd Ranch Guide, Big Nerd Ranch LLC, 3rd edition, 2017.
- John Horton, Android Programming for Beginners - Second Edition, Packt Publishing
- Neil Smyth, Android Studio 3.0 Development Essentials: Android 8 Edition, Amazon Digital Services

Reference Books Recommended:

- Rajiv Ramnath, Roger Crawfis, and Paolo Sivilotti, Android SDK 3 for Dummies, Wiley.
- Michael Burton Android App Development for Dummies, 3ed, Wiley publication.

Online Resources:

- Android from SWAYAM/NPTEL- https://nptel.ac.in/courses/106106147
- Android from Tutorialspoint - https://www.tutorialspoint.com/android/android_overview.htm
- Android Studio from JavaTPoint - https://www.javatpoint.com/android-tutorial
- Android App Development - https://developer.android.com/guide
- Android Application Development – Udemy- https://www.udemy.com/course/learn-android-application-development-y//
- Android Application Development – Coursera – https://www.coursera.org/specializations/android-app-development

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** x**1**= **10** Mark; **Q2**. Short answer type- **5**x**4** =**20 Marks** Section B: Descriptive answer type qts.,**1out of 2** from each unit-**4**x**10**=**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 INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree)*			**Semester - VII**	**Session: 2024-2025**
1	Course Code	**ITSC-06P**		
2	Course Title	**LAB 08: Mobile Application Development**		
3	Course Type	**Practical**		
4	Pre-requisite	*As per program*		
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Apply general programming knowledge in the field of developing mobile applications. • Design and develop an Android app for different real-time activities and purposes. • Develop and deploy mobile applications into different hosting services. • Understand the specific requirements, possibilities, and challenges when developing for a mobile context. • Interact between user interface and underlying application. • Understand the full life cycle development of mobile apps. • Plan and carry out design work including developing a prototype that can be evaluated with a specified user group. • Reflect on possibilities and demands in collaborative software development.		
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. Create "Hello World" application that will display "Hello World" in the middle of the screen in the red color with white background. 2. Create Custom Toast & Dialog Box. 3. Design an application that contains phone contacts in vertical linear manner. Selected contact appears at the top of the list with a large italicized font and a blue background. 4. Create an application that uses Layout Managers and Event Listeners. 5. Develop a standard calculator application to perform basic calculations like addition, subtraction, multiplication and division. 6. Design an application to draws basic graphical primitives (rectangle, circle) on the screen. 7. Design an android application Using Radio buttons. 8. Create a user registration application that stores the user details in a database table. 9. Build a mobile application that create, save, update and delete data in database. 10. Create an application that takes the name from a text box and shows hello message along with the name entered in text box, when the user clicks the OK button. 11. Devise an application that implements Multithreading. 12. Develop a mobile application that uses GPS location information.	**30**

13. Create an application that writes data to the SD card.
14. Implement an application that creates an alert upon receiving message.
15. Design a mobile application that creates alarm clock.
16. Create a screen that has input boxes for User Name, Password, Address, Gender (radio buttons for male and female), Age (numeric) and a Submit button. On clicking the submit button, print all the data below the Submit Button (use any layout).
17. Design an android application to create page using Intent and one Button and pass the Values from one Activity to second Activity.
18. Design an android application send SMS using Intent.
19. Create an android application using Fragments.
20. Design an android application for menu.

Note: This is a tentative list; the teachers' concern can add more program as per requirement.

Keywords	*Android, Eclipse, Virtualization, Debugging, Toast, Spinners, Threads, Geocoding, Doodlz.*

Signature of Convener & Members of CBoS:

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Bill Phillips, Chris Stewart, Brian Hardy, and Kristin Marsicano, Android Programming: The Big Nerd Ranch Guide, Big Nerd Ranch LLC, 3rd edition, 2017.
- John Horton, Android Programming for Beginners - Second Edition, Packt Publishing
- Neil Smyth, Android Studio 3.0 Development Essentials: Android 8 Edition, Amazon Digital Services

Reference Books Recommended:

- Rajiv Ramnath, Roger Crawfis, and Paolo Sivilotti, Android SDK 3 for Dummies, Wiley.
- Michael Burton Android App Development for Dummies, 3ed, Wiley publication.

Online Resources:

- Android from SWAYAM/NPTEL: https://nptel.ac.in/courses/106106147
- Android from tutorialspoint: https://www.tutorialspoint.com/android/android_overview.htm
- Android Studio from Javatpoint: https://www.javatpoint.com/android-tutorial
- Android App Development: https://developer.android.com/guide
- Android Application Development – Udemy: https://www.udemy.com/course/learn-android-application-development-y//
- Android Application Development – Coursera: https://www.coursera.org/specializations/android-app-development
- Lab manuals:
    - https://pesitsouth.pes.edu/pdf/2019/July/MCA/android%20Lab%20manual.pdf
    - https://mrcet.com/pdf/Lab%20Manuals/MOBILE%20APPLICATION%20DEVELOPMENT%20LAB.pdf
    - https://www.vvitengineering.com/lab/CS6611-MOBILE-APPLICATION-DEVELOPMENT-LABORATORY.pdf
    - http://www.jnit.org/wp-content/uploads/2020/04/SDL-II-android.pdf

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

Sunil

Suresh Thakur

Shivendra Arya

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			Semester -VII	Session: 2024-2025
1	Course Code	**ITSE-07**		
2	Course Title	**Software Engineering**		
3	Course Type	**DSE (Discipline Specific Elective)**		
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	**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.*

Signature of Convener & Members of CBoS:

Dr. M.S. Hota
chairman

Sahil

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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

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			**Semester -VII**	**Session: 2024-2025**
1	Course Code	**ITSE-08**		
2	Course Title	**Theory of Computation**		
3	Course Type	**DSE (Discipline Specific Elective)**		
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 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. • Design the 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 automata**: Definition and types of automata: Finite Automata, Pushdown Automata, Turing Machine, introduction to Grammar and languages according to the types of automata. **Finite Automata:** Introduction to Finite State Automata (FSA): Formal definition, simpler 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 (RE):** 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 grammars 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 (CFG):** Introduction to CFG's, Properties of CFG's, 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 (TM):** 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	*Finite Automata, Regular Expression, Regular Grammar, Context Free Grammar, Turing Machine.*	

Signature of Convener & Members of CBoS:

Dr H.S. Hota
Chairman
ANJEETA 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.

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-wYxbt4yCgBHUpwXDTLos3JStccGIax&si=TbYH91hmlOrtUEnN
- SWAYAM YouTube Channel: Introduction to Automata, Languages and Computations https://youtube.com/playlist?list=PLbRMhDVUMngcwWkzVTm_kFH6JW4JCtAUM&si=RbTG3WZ0Jf6Zx_pu

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 INFORMATION TECHNOLOGY

COURSE CURRICULUM

PART- A: Introduction			
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*		Semester – VIII	Session: 2024-2025
1	Course Code	**ITSE-09**	
2	Course Title	**Soft Computing**	
3	Course Type	**DSE (Discipline Specific Elective)**	
4	Prerequisite	***As per program***	
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Analyze and appreciate the applications which can use fuzzy logic. • Understand the difference between learning and programming and explore practical applications of Neural Networks (NN). • Understand the efficiency of a hybrid system and how Neural Network and fuzzy logic can be hybridized to form a Neuro-fuzzy network and its various applications • Understand the importance of optimizations and its use in computer engineering fields and other domains. • Introduce the ideas of fuzzy sets, fuzzy logic and use of heuristics based on human experience.	
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:** Soft computing, Different tools of soft computing: Fuzzy logic, Artificial Neural Network, Genetic Algorithm), Area of application. **Fuzzy Logic:** Introduction to Classical Sets and Fuzzy Sets, Membership Function, properties and operations of classical set and Fuzzy set, a-cuts, Properties of a-cuts, Linguistic Variables, Membership function, Classical relation and Fuzzy Relation and its properties and operations, Defuzzification and its methods, Fuzzy rule base.	15
II	**Artificial Neural Network(ANN):** Architecture, Introduction, Evolution of Neural Network, Biological Neural Network Vs ANN, Basic Model of ANN, Different types of ANN, Single layer Perceptron, Solving XOR problem, Activation function, Linear severability, Supervised and unsupervised learning, perceptron learning, delta learning, Feed-forward and Feedback networks, Error Back Propagation Network (EBPN), Associative memories and its types, Hopefield Network, Kohenen self-organizing Map.	15
III	**Genetic Algorithm:** What is Optimization?, Introduction, Application, GA operators: selection, crossover and mutation, different techniques of selection, crossover and mutation, different types of chromosomes, Application of GA.	15
IV	**Hybrid soft commuting:** Design of Neuro-Fuzzy model like ANFIS, Neuro-Genetic, Fuzzy-Genetic Neuro-Fuzzy-Genetic model.	15
Keywords	*Soft Computing, Fuzzy Logic, ANN, Genetic Algorithm.*	

Name and Signature of Convener & Members of CBoS:

Dr H S Hota
Chairman

(Suresh Thakur)

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Principles of soft computing, S.N. Shivanandan and S.N. Deepa , Wiley publication, Wiley India Edition.
- Neural network and Learning Machines, Simon Haykin, Pearson Education, 2011.
- Artificial Neural Networks, Robert J. Scholkoff, McGraw Hill Education (India) Pvt. Limited, 1997.
- Fuzzy Sets, Uncertainty and Information, G. J. Klir and T.A. Folger, PHI learning private limited. Publisher– Pearson 3Edition 1999

Reference Books Recommended:

- Neural Networks and Fuzzy Systems, A dynamical Systems Approach to Machine Learning, Bart Kosko, PHI learning private limited.
- Neural Networks, Fuzzy Logic and Genetic Algorithm: Synthesis and Applications, S. Rakasekaran, G.A. VijayalakshmiPai, PHI learning private limited, 14th Edition. 2003.
- Neural Networks and Fuzzy Logic, K. Vinoth Kumar, R. Saravana Kumar, S. K. Kataraia and Sons publication.
- Artificial Neural Networks, B.Yegnanarayana Prentice Halll of India (P) Limited.
- Introduction to Artificial Neural Systems, Jacek M. Zurada, Jaico Publication House.

Online Resources:

- Introduction to Soft computing:
  - https://onlinecourses.nptel.ac.in/noc22_cs54/preview (SWAYAM-NPTEL)
  - What is soft computing - Javatpoint
- Need for Soft Computing: Need for Soft Computing - GeeksforGeeks
- Introduction To Soft Computing: Introduction To Soft Computing - 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 of CBoS:

Dr. S. Kotte
Chairman

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*		Semester - VIII	Session: 2024-2025
1	Course Code	ITSE-10	
2	Course Title	Computer Graphics	
3	Course Type	DSE (Discipline Specific Elective)	
4	Pre-requisite	*As per program*	
5	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able: • Understand the basics of computer graphics, different graphics systems and applications of computer graphics. • Discuss various algorithms for scan conversion and filling of basic objects and their comparative analysis. • Use of geometric transformations on graphics objects and their application in composite form. • Extract scene with different clipping methods and its transformation to graphics display device. • Explore projections and visible surface detection techniques for display of 3D scene on 2D screen.	
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	**Basics of Computer Graphics**: Applications of Computer Graphics, Input Devices: Keyboard, Mouse, Trackball & Space ball, Joystick, Data Glove, Digitizers, Image Scanners, Touch panels, Light Pens systems. Output display devices: Refresh CRT, Raster-Scan display and Random-scan display technique, Color display techniques-Beam penetration method and Shadow-mask method, Direct view storage tubes, Emissive & Non-emissive flat-panel, Displays-Plasma panels, LED and LCD monitor.	15
II	**Fundamental Techniques in Graphics**: Line-drawing algorithms, DDA algorithm and Bresenham's Line drawing Algorithm, Midpoint Algorithm for Circle and Ellipse Generation, Curve generation. Attributes for output primitives: Area-filling Algorithms - Scan-line Polygon-fill.	15
III	**Geometrical Transformation**: 2D Transformation (translation, rotation, scaling, reflection and shearing), Homogeneous Coordinates and Matrix Representation of 2D Transformations, Successive and composite 2D Transformations, the Window-to-Viewport Transformations, Introduction to 3D Transformations Matrix.	15
IV	**Curves and Surfaces**: Polygon Surfaces and polygon meshes, Quadratic and super quadrics surfaces, Spline curve and representationDefinition of Bezier curve and its properties, Algorithms for Bezier curves and surfaces, Hermite curve.	15
Keywords	*Computer Graphics, Raster Scan, Random-scan, Line Drawing Algorithm, Matrix Representation*	

Signature of Convener & Members of CBoS:

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Foley, Van Dam, Feiner, Hughes, Computer Graphics Principles& practice,2000.
- D.J. Gibbs & D.C. Tsichritzs: Multimedia programming Object Environment& Frame work, 2000.

Reference Books Recommended:

- Ralf Skinmeiz and Klana Naharstedt, Multimedia: computing, Communication and Applications, Pearson, 2001
- D. Haran & Baker. Computer Graphics Prentice Hall of India, 1986.

Online Resources:

- NPTEL: https://onlinecourses.nptel.ac.in/noc20_cs90
- https://mrcet.com/downloads/digital_notes/CSE/III%20Year/COMPUTER%20GRAPHICS%20NOTES.pdf
- http://www.aagasc.edu.in/cs/COMPUTER%20GRAPHICS%20NOTES.pdf
- https://archive.mu.ac.in/myweb_test/S.Y.B.Sc.(IT)%20(Sem%20%20III%20)%20Computer%20Graphics.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. Mehta
Chairman

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			Semester - VIII	Session: 2024-2025
1	Course Code	ITSE-11		
2	Course Title	Cloud Computing		
3	Course Type	DSE (Discipline Specific Elective)		
4	Pre-requisite	*As per program*		
5	Course Learning Outcomes (CLO)	After Completing this course, students will be able to: • Understand the concepts, characteristics and benefits of cloud computing. • Understand the key security and compliance challenges of cloud computing. • Understand the concept of Cloud Security and governance. • Learn the Concept of Cloud Infrastructure Model. • Understand the cloud storage, Cloud Virtualization & Micro services.		
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	**Fundamental Cloud Computing:** Concepts, Terminology, Technologies, Benefits, Challenges, SLAs and business cost metrics associated with cloud computing, SaaS, IaaS, PaaS delivery models, Common cloud deployment models and cloud characteristics, Various applications of cloud computing. **Cloud Architecture:** The technology architecture of cloud platforms and cloud-based solutions and services and their utilization via a set of cloud computing design patterns, Hybrid cloud deployment models, Compound design patterns and solution architectures that span cloud and on-premise environments.	15
II	**Cloud Security & Governance:** The cloud security mechanisms, cloud security architecture, A set of security design patterns, The definition of cloud governance precepts, Roles, Practices and processes, Common governance challenges and pitfalls specific to cloud computing.	15
III	**Cloud Storage:** The cloud storage devices, Structures and technologies, cloud storage mechanisms, Persistent storage, Redundant storage, Cloud-attached storage, Cloud-remote storage, Cloud storage gateways, Cloud storage brokers, Direct Attached Storage (DAS), Network Attached Storage (NAS), Storage Area Network (SAN), Various cloud storage-related design patterns.	15
IV	**Cloud Virtualization & Microservices:** Core topic areas pertaining to the fundamental virtualization mechanisms and types used within contemporary cloud computing platforms are explored along with various key performance indicators and related metrics, Microservices of Cloud Computing.	15
Keywords	*Cloud Computing, Security, Governance, Storage, Virtualization.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota (Chairman)

Sunil

Suresh Thakur

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Distributed Computing by Dollymore Cloud Computing (Wind) by Dr. Kumar Saurabh, 2nd Edison, Wiley India.

Reference Books ***Recommended:***

- Cloud Computing: Principles and Paradigms, Editors: Rajkumar Buyya, James Broberg, Andrzej M. Goscinski, Wile, 2011 Cloud Computing: Principles, Systems and Applications, Editors: Nikos Antonopoulos, Lee Gillam, Springer, 2012.
- Handbook of Cloud Computing by Anand Nayyar, Publisher: BPB Publication.

Online Resources:

- Introduction to Cloud Computing from W3shool: https://www.w3schools.in/cloud-computing/tutorials/
- Introduction to Cloud Computing from Coursera: https://www.coursera.org/learn/introduction-to-cloud
- Cloud Computing Basics: https://www.coursera.org/learn/cloud-computing-basics
- Cloud Computing Concepts: https://www.coursera.org/learn/cloud-computing
- Cloud Computing Specialization from Coursera: https://www.coursera.org/specializations/cloud-computing
- Cloud Computing from SWAYAM/NPTEL: https://onlinecourses.nptel.ac.in/noc22_cs20/preview https://www.youtube.com/channel/UCK73enkjfQNDwdBqMyaMtRg
- Cloud Computing Basics: https://terrorgum.com/tfox/books/cloudcomputingbasics_aselfteachingintroduction.pdf
- CLOUD COMPUTING Principles and Paradigms : https://dhoto.lecturer.pens.ac.id/lecture_notes/internet_of_things/CLOUD%20COMPUTING%20Principles%20and%20Paradigms.pdf
- Cloud Computing Tutorial For Beginners: https://www.youtube.com/watch?v=fLV_t2qKYyU
- Introduction to Cloud Computing: https://www.youtube.com/watch?v=Dv0sjAYnVCY
- Cloud Computing Tutorials: https://www.youtube.com/watch?v=NyA9PB6j8bg

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
(Bharat Thakker)
ANJELIA KUJU

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			**Semester - VIII**	**Session: 2024-2025**
1	Course Code	**ITSE-12**		
2	Course Title	**Major Project**		
3	Course Type	**DSE (Discipline Specific Elective)**		
4	Prerequisite	*As per program*		
5	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Enhance knowledge on latest techniques. • Make ready for IT industry. • Upgrade skill set as per IT industry. • Handle real word applications. • Debug Problem to make DFD of proposed system.		
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 hours - 60 Hours

	Important Guidelines for Project	No. of Period
	A project report has to be submitted as per the rules described below: 1. **Number of Copies:** The student should submit One hard bound copy of the Project Report with one CD/DVD. 2. **No of students:** Every student has to submit separate project. 3. **Acceptance / Rejection of Project Report:** The student must submit a project report to the Head of Department/Project Guide for approval. The Head of Department/Project Guide holds the right to accept the project or suggest modifications for resubmission. 4. **Format of the Project Report :**The student must adhere strictly to the following format for the submission of the Project Report I. **Paper:** The report shall be typed on white paper, A4 size or continuous computer stationary bond, for the final submission. The report to be submitted to the University must be original and subsequent copies may be photocopied on any paper. II. **Typing:** The typing shall be of standard letter size, double-spaced and on one side of the paper only, using black ribbons and black carbons. III. **Margins:** The typing must be done in the following margins Left ----- 35mm, Right ----- 20mm Top ----- 35mm, Bottom ----- 20mm IV. **Binding:** The Report shall be Rexene bound in black. Plastic, spiral bound Project Reports not be accepted. V. **Front Cover:** The front cover should contain the following details: **TOP:** The title in block capitals of 6mm to 15mm letters. **CENTER:** Full name in block capitals of 6mm to 10mm letters. **BOTTOM:** Name of the University, year of submission- all in block capitals of 6mm to 10mm letters on separate lines with proper spacing and centring.	60

VI. **Blank Sheets:** At the beginning and end of the report, two white black bound papers should be provided, one for the purpose of binding and other to be left blank.

5. **Abstract:** Every report should have an abstract following the Institute's Certificate. The abstract shall guide the reader by highlighting the important material contained in the individual chapters, section, subsection etc.
6. **Certificates etc:** The report should contain the following:
   I. Institute Certificate: Successful completion of project by competent authority.
   II. Acknowledgment
   III. List of Figures
   IV. Tables
   V. Nomenclature and Abbreviations
7. **Contents of the Project Report:** The project report must contain following in form of chapter, however student may include any other relevant chapter(s):
   I. **Introduction to the project:** This chapter shall highlight the purpose of project work, it will also define the chapters to be followed in the Project Report.
   II. **Scope of work:** Brief scope of the project work done
   III. **Existing System and Need for proposed System:** If there is some system already in use, then give brief detail of it in order to help to understand the enhancements carried out by the student in the existing system.
   IV. **Operating Environment**: Hardware and Software required and used.
   V. **Proposed System:** Which may contain following:
      a. **Objectives to be fulfilled**: clearly define the objective(s) of the system.
      b. **User Requirements**: State the requirements of the use in an unambiguous manner.
      c. **Requirements Determination Techniques and Systems Analysis Methods Employed:** Use the formal methods to describe the requirements of the use like Fact Finding Methods, Decision Analysis, and Data Flow Analysis etc.
      d. **Prototyping:** If the prototypes has been developed prior to the detailed design, then give details of the prototype.
      e. **System Feature**: Which includes as follows:
      - Module specifications
        - D.F.D. and ER
        - System flow charts
        - Data Dictionary
        - Structure charts
        - Database /File layouts
        - Design of Input Design of Output screens and reports
        - User Interfaces
        - Design of Control Procedures
8. **Testing procedures and Implementation phase**
9. **Problems encountered, Drawbacks and Limitations**
10. **Proposed Enhancements/ Future enhancement**
11. **Conclusions**
12. **Bibliography**
13. **Annexure**

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

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.
- Roger S. Pressman, Software Engineering, A practitioner's Approach, 6th edition, McGraw Hill International Edition.

Reference Books Recommended:

- 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.
- James Rumbaugh, Ivar Jacobson, The unified modelling language user guide Grady Booch, Pearson Education.

Online Resources:

- SWAYAM URL link for DBMS and RDBMS: https://youtu.be/f6LGtJutWyA
- SWAYAM URL link for DBMS and RDBMS: https://**swayam**.gov.in/courses/4434-data-base-management-system
- Introduction of RDBMS from SWAYAM : https://onlinecourses.nptel.ac.in/noc19_cs46/preview
- Introduction to DMBS: https://www.w3schools.in/dbms/intro
- 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**
End Semester Exam (ESE):	**100 Marks**

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Thakur
Chairman

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART-A: Introduction

Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*	Semester – I/III/V	Session: 2024-2025

1	Course Code	**ITVAC–01**		
2	Course Title	**Artificial Intelligence**		
3	Course Type	**Value Addition Course (VAC)**		
4	Prerequisite	***As per program***		
5	Course Learning Outcomes(CLO)	At the end of this course, students will be able to: • Understand basics of AI. • Understand problem solving techniques of AI. • Aware about AI tools. • Explore application of AI in various domains. • Understand the current scenario of AI in India.		
6	Credit Value	**2 Credits**	***Credit = 15 Hours -Learning & Observation***	
7	Total Marks	**Max. Marks: 50**	**Min Passing Marks: 20**	

PART – B: Content of the Course

Total No. of Teaching– Learning Periods (01 Hr. per period) - 30 Periods (30 Hours)

Unit	Topics (Course contents)	No .of Period
I	**Introduction:** Overview of Artificial Intelligence (AI), Foundations of AI, Areas and Applications of AI in various domains, AI in India, Impact and examples of AI, Future of AI.	**8**
II	**Advanced AI:** Basic Concept of Machine Learning, Deep Learning, Computer vision, Natural Language Processing (NLP), Speech recognition, Generative AI Applications.	**8**
III	**AI Tools:** Conversational AI: ALEXA, CORTANA, SIRI etc., AI tools for content generation, Image creation, Presentation, Video editing etc.	**8**
IV	**Application of AI:** Agriculture, Healthcare, Environment, Teaching-Learning, E-Commerce, Industry, Research etc.	**6**
Keywords	*Artificial Intelligence (AI), Machine Learning (ML), Deep Learning, Computer Vision, Natural Language Processing (NLP), Conversational AI, Generative AI.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman
(Suresh Thakur)
ANJEETA KUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Introduction to Artificial Intelligence and Expert Systems, Dan W. Patterson, PHI Publication.
- Artificial Intelligence, Elaine Rich and Kevin Knight TMH publication.

Reference Books Recommended:

- Artificial Intelligence and machine learning, Vinod Chandra S.S., Anand Hareendrn S., PHI learning private Ltd.
- Foundations of Artificial Intelligence and Expert Systems, Macmillan Series in Computer Science, V.S. Jankiraman, K. Sarukesi and P. Gopala Krishnan.

Online Resources:

- Ministry of Electronics and Information Technology Portal for INDIAai: https://indiaai.gov.in/
  Introduction to Artificial Intelligence from SWAYAM: https://www.youtube.com/watch?v=pKeVMlkFpRc&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=2
  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
- 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

PART-D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:

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

Continuous InternalAssessment(CIA): (By Course Teacher)	Internal Test / Quiz-(2): **10 + 10** Assignment/Seminar- **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 learned skill - 20 Marks** **B. Spotting based on tools (Written) - 10 Marks** **C. Viva-voce (based on principle/technology)- 05 Marks**	Managed by Coordinator as per skilling

Name and Signature of Convener & Members of CBoS:

Dr H.S. Hota
Chairman

ANJEETA KUJUR

FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)
DEPARTMENT OF INFORMATION TECHNOLOGY
COURSE CURRICULUM

PART- A: Introduction				
Program: Bachelor in Science (IT) *(Certificate / Diploma / Degree/Honors)*			Semester - II/IV/V/VI	Session: 2024-2025
1	Course Code	**ITSEC-01**		
2	Course Title	**MS-Office**		
3	Course Type	**SEC (Skill Enhancement Course)**		
4	Prerequisite	*As per program*		
5	Course Learning Outcomes (CLO)	After Completing this course, students will be able to: • Study and use of basic concepts and terminology of information technology. • Organize files and documents on storage devices. • Acquire knowledge of ICT and Internet applications. • Develop information technology solutions by evaluating user requirements in advance trends of IT. • Acquire knowledge of MS-Excel, MS-PowerPoint and MS-Access.		
6	Credit Value	**2 Credits (1C+1C)**	***Credit =15 Hours Theoretical Learning and = 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 Teaching-learning periods:
Theory- 15 Periods (15 Hrs.) and Laboratory or Field learning/Training Periods: 30 Periods (30 Hours)

Module	Topics (Course contents)	No. of Period
Theory Content	1. **MS-Word:** Introduction to word processing software and its features, Creating new document, Saving documents, Opening and Printing documents. Setting fonts, Paragraph settings, Find & Replace, Copy paste and paste special, Mail Merge, Spelling and Grammar check. 2. **MS-Excel:** Introducing Excel, Use of Excel sheet, creating new sheet, Saving, Opening, and Printing workbook. Font, Alignment, Number, Styles and cells and editing, Table, Charts, Page setup options. 3. **PowerPoint:** Introducing PowerPoint, Use of PowerPoint presentation, Creating new slides saving, Opening and printing, Layout, Setting text direction, Align text, Convert to smart art, Drawing options, Table, Picture, Clipart, Smart art, Shapes and chart, Movie and sound, Hyperlink and action, Text box, Word art, Object.	**15**
Lab/Field Training Content	1. Create a word document and do followings: page setup, paragraph setup, tab setting etc. 2. Create a excel sheet and do followings: cell formatting, page setup, creating chart and use some predefine function. 3. Create a presentation and do followings: slide animation, text animation, slide show setting etc.	**30**
Keywords	*MS Word, MS Excel, MS Power Point.*	

Signature of Convener & Members of CBoS:

Dr. H.S. Hota
Chairman

ANJEETA KUJUR

PART–C: Learning Resources

Text Books, Reference Books and Others

Text Books Recommended:

- Computer Fundamentals, P.K. Sinha, BPB Publication, Sixth Edition.
- Fundamentals of Information Technology, Chetan Shrivastava, Kalyan Publishers.
- Fundamentals of Computers, V. Rajaraman, PHI Sixth Edition.
- Computer Fundamentals and Office Automation, Dr. Santosh Kumar Miri, Iterative International Publisher IIP.
- Computer Fundamentals Architecture and Organization, B. Ram, New Age International Publishers, Fifth Edition.
- Fundamentals of Information Technology, Alexis Leon and Mathews Leon, Vikash Publication.

Reference Books Recommended:

- Introduction to Information Technology, V. Rajaraman, PHI publication.
- Fundamental of IT, Leon and Leon, Leon Tec world.
- Introduction to Information Technology, Aksoy and Denardis, Cengage learning.
- Computers Today, Suresh K. Basandra, Galgotia Publications.
- Information Technology – The breaking wave, Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, TMH.
- OFFICE 2013 in Simple Steps, Kogent Solution Inc., DremTech Press.
- Access 2010 in Simple Steps by Kogent Learning Solutions Inc.

Online Resources:

- Introduction to Computer Fundamental from W3school: https://www.w3schools.blog/computer-fundamentals-tutorial
- Introduction to MS-Word from W3school: https://www.w3schools.blog/ms-word-tutorial
- Introduction to MS-Excel from W3school: https://www.w3schools.com/excel/excel_introduction.php
- Introduction to MS-PowerPoint from W3school: https://www.w3schools.blog/powerpoint-tutorial
- Introduction to MS-Access from W3school: https://www.w3schools.com/sql/sql_ref_msaccess.asp
- Fundamentals of Computers & Information Technology (in Hindi) : https://www.mcu.ac.in/wp-content/uploads/2020/04/1PGDCA1-Unit-I-Fundamentals-of-Computers-Information-Technology.pdf.
- Fundamentals of Computers & Information Technology (in Hindi): https://hte.rajasthan.gov.in/dept/dte/board_of_technical_education,_rajasthan/government_polytechnic_college_hanumangarh/uploads/doc/fundamental-_final-rkd.pdf.
- Information and Computers Technology: https://cbseacademic.nic.in/web_material/doc/2014/11_ICT-IX.pdf.pdf.
- Microsoft Office (in Hindi): https://www.scribd.com/document/534988849/9-Microsoft-office-in-hindi-www-GkNotesPDF-com.
- MS-OFFICE: https://www.rgycsm.org/uploads/books/MICROSOFT-OFFICE-BOOK.pdf.
- MS-OFFICE: Hindi Notes: https://www.copaguide.com/2020/04/ms-office-topics.html.
- Microsoft Office Full Crash Course: https://www.youtube.com/watch?v=SH4oyV5AJ6A

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
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