# **SYLLABUS FOR**

# THE FOUR-YEAR UNDERGRADUATE PROGRAMME (FYUGP)

As per provision of NEP-2020 to be implemented from Academic Year 2022 onwards



**Session 2025-26** 

Semester - I & II

**DEPARTMENT OF COMPUTER SCIENCE** 

GOVT. DIGVIJAY AUTONOMOUS P.G. COLLEGE, RAJNANDGAON (C.G.)

# B. SC. (Multiple Major) – DEGREE COURSE (Session 2025-26) Major – Computer Science

	SEMESTER	COURSE	Theory/ Practical	COURSE CODE	PAPER TITLE	CREDIT		IT	Max Marks	ESE	IA
			114001041	0022		L	Т	P	11141115		
		DSC	Theory	CSSC- 01T	Computer Fundamental and Operating System	3	0	0	100	70	30
		DSC-LAB	Practical	CSSC- 01P	Lab 1 – Operating System(DOS, Windows, Linux)	0	0	1	50	35	15
	I	DGE	Theory	CSGE-01T	Computer Fundamental and Operating System	3	0	0	100	70	30
		DGE-LAB	Practical	CSGE- 01 P	Lab 1 – Operating System(DOS, Windows, Linux)	0	0	1	50	35	15
FIRST YEAR		VAC	Theory	CSVAC-01	Artificial Intelligence	2	0	0	50	35	15
		DSC	Theory	CSSC- 02T	Programming in C++	3	0	0	100	70	30
		DSC-LAB	Practical	CSSC- 02P	Lab 2 : Programming in C++	0	0	1	50	35	15
	II	DGE	Theory	CSGE-02T	Programming in C++	3	0	0	100	70	30
		DGE- LAB	Practical	CSGE- 02 P	Lab 2 : Programming in C++	0	0	1	50	35	15
		SEC	Practical	CSSEC- 01	Multimedia and Animation	0	0	2	50	35	15

**DSC- Discipline Specific Course** 

**DGE – Discipline Generic Elective** 

**VAC- Value Addition Course** 

**SEC – Skill Enhance Course** 

**CIA- Continuous Internal Assessment** 

**ESE – End Semester Exam** 

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

			Cou	RSE CU	RRICULUN	M				
P	AR	T- A: Introd	uction		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					
	-	am: Bachelor in S	, ,		Semester - I		Session: <b>2024-</b> 2			
1	-	urse Code	CSSC-01T				Session 202	5-26		
2	-	urse Title	Computer Fun	damental	and Operatin	g System				
3		urse Type	DSC (Disciplin			<u> </u>				
4	-	erequisite	As per program							
Course Learning Outcomes (CLO)			<ul><li>Organize</li><li>Acquire k</li><li>Develop i in advance</li></ul>	use of basic files and do nowledge o nformation e trends of I	concepts and to cuments on stor f ICT and Inter- technology sol T.	erminology or rage devices. net application utions by ev		quirements		
6	Cr	edit Value	3 Credits				& Observation			
7		tal Marks	Max. Marks:							
<b>A</b>	RT	-B: Conten	t of the Co	urse						
			ching-Learning		(01 Hr. per p	eriod) - 45	Periods (45 H	ours)		
11.	nit	TOTAL TOTAL TOTAL			urse conten			No. of		
UI	111					,		Period		
,		Indian knowledge evidence, Salient system, pingala and mathematics.  Fundamental of Computers, Block Major components capability of CPU, software and firmw	aspect of Indian d the binary system  Computer: History diagram of CPU, of digital comput Microprocessors, S.	Mathemat m, Sulbha ry of comp Digital an ers, Types Single chip	Sutra as model outer, Generation of digital communications	mkhya systom rn arithmetic ion of compomputers an aputers, Mer	em, Katapayadi c and numerical outer, Types of id its evolution. nory addressing	13		
II		Peripheral devices: I/O Devices-Keyboard, Mouse, Monitor, Impact and Non-Impact Printers, Plotters, Scanner, other Input/output devices I/O Port, Programmable and Non-Programmable I/O port, Inbuilt I/O ports, Parallel and Serial ports, USB, IEEE 1394, AGP, Serial data transfer scheme, Microcontroller, Signal Processor, I/O processor, Arithmetic Processor.								
I	III Memory: Memory hierarchy, Primary and Secondary Memory, Cache memory, Virtual Memory, Direct Access storage devices (DASD) Destructive and Non-destructive Readout, Program and data memory, Memory Management Unit (MMU).									
ľ	V	Operating System Introduction to DO DOS, File Structur Basics of Windows to Linux Operating find, grep, head, tai	S, History Booting e of DOS. Windo , Windows Explor System, Structure	g process of ws Operations fer, Window	f DOS, Interna ng System: Hi vs Accessories,	I and Extern story, Version, Control Par	al commands of on of Windows, nel. Introduction	11		
	vords	Computer, Input /O	utput Devices, Men			OS, Linux.	( VISC127v.	01/4		
Van	we a	xl Signature of Co.	nvener & Membe	ers of CBo.	S: Naal	/	mel	A		
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Text Books, Reference Books and Others

#### Text Books Recommended:

- P.K. Sinha, Computer Fundamentals, BPB Publication, Sixth Edition.
- V. Rajaraman, Fundamentals of Computers, PHI Sixth Edition.
- B. Ram, Computer Fundamentals Architecture and Organization, New Age International Publishers, Fifth Edition.
- Raja Raman V. Fundamental of Computers, Prentice Hall of India, New Delhi.
- Peter Baer Galvin, Greg Gagne, Operating System Concepts Abraham Silberschatz, 8th edition, Wiley-India, 2009.

### Reference Books Recommended:

- Chetan Shrivastava, Fundamentals of Information Technology, Kalyan Publishers.
- Dr. Santosh Kumar Miri, Computer Fundamentals and Office Automation, Iterative International Publisher IIP.
- Alexis Leon and Mathews Leon, Fundamentals of Information Technology, Vikash Publication.
- · Leon and Leon, Fundamental of IT, Leon Tec world.
- Aksoy and Denardis, Introduction to Information Technology, Cengage learning.
- Suresh K. Basandra, Computers Today, Galgotia Publications.
- Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, Information Technology The breaking wave, TMH.
- Kogent Solution Inc., OFFICE 2013 in Simple Steps, DremTech Press.
- Kogent Learning Solutions Inc., Access 2010 in Simple Steps
- Andrew S. Tanenbaum, Modern Operating Systems, 3rd Edition, PHI
- Elmasri, Carrick, Levine, Operating Systems: A Spiral Approach TMH Edition
- Akshay Singh, Operating System, RGCSM Publications

### Online Resources:

- Indian Knowledge System and computer Science from Swayam portal https://onlinecourses.swayam2.ac.in/imb23 mg53/preview
- Fundamentals of Computer:
  - https://www.w3schools.blog/computer-fundamentals-tutorial
- Fundamentals of Computer, Memory:
  - https://www.tutorialspoint.com/computer\_fundamentals/index.htm
- Fundamentals of Computer, Windows Operating System:
- https://vikaspedia.in/education/digital-litercy/it-literacy-courses-in-associating-with-msup/computer-fundamentals
- Fundamentals of Computer:
  - https://nptel.ac.in/courses/106/103/106103068/
- Introduction to Operating System:
  - https://www.w3schools.in/operating-system/tutorials/
- Introduction to Operating System:
  - https://www.javatpoint.com/windows.
- Peripheral Devices
  - https://www.tutorialspoint.com/what-are-peripheral-devices
- Windows:
  - https://www.javatpoint.com/windows
- Linux:
  - https://www.javatpoint.com/what-is-linux

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Suggested Continuous	Evalua	tion Method	s:				
Maximum Marks:			00 Marks	;			
Continuous Internal A	ssessm	ent (CIA):	30 Marks	S			
End Semester Exam (			70 Marks				
Continuous Internal		iternal Test /		0 & 20			e two Test / Qu
Assessment (CIA):		.ssignment / S	Seminar -	10			ignment shall
(By Course Teacher)	T	otal Marks -		30	cons	sidered agains	st 30 Marks
End Semester	Two s	ection - A &	В				
Exam (ESE):	Section	A: Q1. Object	ctive - 10 x	1= 10 Ma pe qts.,1	rk; Q2. Show out of 2 from	t answer type- n each unit-4x	5x4 =20 Mark 10=40 Marks
	Section Section	n A: Q1. Objec n B: Descriptiv	ctive – 10 x ve answer ty	pe qts.,1	rk; Q2. Show	t answer type- m each unit-4x	5x4 =20 Mark 10=40 Marks
Exam (ESE): Name and Signature of	Section Section	n A: Q1. Objec n B: Descriptiv	ctive – 10 x ve answer ty	pe qts.,1	rk; Q2. Show	t answer type- m each unit-4x	5x4 = 20 Mark 10=40 Marks
Exam (ESE): Name and Signature of	Section Section	n A: Q1. Objec n B: Descriptiv	ctive – 10 x ve answer ty	pe qts.,1	rk; Q2. Shorout of 2 from	t answer typem each unit-4x	5x4 = 20 Mark 10=40 Marks
Exam (ESE): Vame and Signature of	Section Section	n A: Q1. Objec n B: Descriptiv	ctive – 10 x ve answer ty	pe qts.,1	rk; Q2. Shor	t answer type- m each unit-4x	5x4 = 20 Marks 10=40 Marks
Exam (ESE):  Same and Signature of	Section Section	n A: Q1. Objec n B: Descriptiv	ctive – 10 x ve answer ty	pe qts.,1	rk; Q2. Shor	t answer typem each unit-4x	10-40 Marks Alyel
Exam (ESE):  Same and Signature of	Section Section	n A: Q1. Objec n B: Descriptiv	ctive – 10 x ve answer ty	pe qts.,1	rk; Q2. Shorout of 2 from	t answer typem each unit-4x	10-40 Marks Alyeet
Exam (ESE):  Same and Signature of	Section Section	n A: Q1. Objec n B: Descriptiv	ctive – 10 x we answer ty rs of CBoS	pe qts.,1	rk; Q2. Shorout of 2 from	t answer typem each unit-4x	ANJECTA
Exam (ESE):  Same and Signature of	Section Section	n A: Q1. Objec n B: Descriptiv	ctive – 10 x we answer ty rs of CBoS	rpe qts.,1	rk; Q2. Shorout of 2 from	t answer typem each unit-4x	10-40 Marks Alyeet

# FOUR YEAR UNDERGRADUATE PROGRAM (2024 - 28)

# DEPARTMENT OF COMPUTER SCIENCE COURSE CURRICULUM

			C	Cours	E CURRICL	JLUM		
P	ART-	A: Intro	duction					
	_	1: Bachelor in See/Diploma/De	, ,		Semester	- I	Session: 2024-20	
1		se Code	CSSC-01P				Session 2025-2	26
2	Cour	se Title		ating Sy	stems (DOS, W	Vindows	s, Linux)	
3	Cour	se Type	Practical					
4	Prere	quisite	As per progre	am				
5	Course Learning Outcomes (CLO)  At the end of this course, the students will be able to:  • Understand the fundamental concepts of DOS, Windows and L Operating System.  • Understand basics of DOS commands and its types.  • Understand features of Windows Operating system.  • Understand comparative features of DOS and Windows Operating syst  • Explore functionality of Linux.  Credit Value  1 Credits   Credit = 30 Hours Laboratory or Field Learning/Training							systems
6		it Value	1 Credits					
7	Total	Marks	Max. Marl		50	I N	Iin Passing Marks:	20
PA	RT -		nt of the					
		Total No.	of learning-T	raining/	performance I	Periods	: 30 Periods (30 Hours)	
Mo	dule			Topics	s (Course cor	ntents)		No. of
Pra	st of netical eriment	<ol> <li>Create on</li> <li>Demonstr</li> <li>Demonstr</li> <li>Introducti</li> <li>Study and</li> <li>Working</li> <li>Use of va</li> <li>Explainin</li> <li>Working</li> <li>Create a f</li> <li>Write a L</li> <li>Demonstr</li> <li>Create D directory</li> <li>Delete ab</li> <li>Explainin</li> </ol>	e file and rena ate all Internal rate all externa- on to Window use of Deskto with Files and rious window g control pane with printers. The using Linus inux command rate use of grep irectory using ove created file g various flavo	me file u l DOS Co al DOS Co s and Far op, my co Folder. application comma d which l p comma f Linux of tes and di ors of Lin	sing DOS commonmands with Commands with Commands with miliarity with it omputer, recycle ons: Calculator, and. ists all files and and command and rectory using Laux.	mand Output. output. s contro e bin, Ta , notepac directo create 3	ask bar.  d and MS-Paint.  ries.  d different files in this	30
Key	words	DOS, Windows, L	inux.					
Du	5	Signature of Con Floto Kren Man Kren	wener & Men	ubers of	CBoS:	zal	M AL	Ai

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### Text Books, Reference Books and Others

### Text Books Recommended:

- Rusell A Stultz, MS DOS 6.22 BPB Publications
- Brain Underdahl, Teach yourself Windows 2000, Wiley Publications.

### Reference Books Recommended:

- Peter Norton, Maximizing Windows, Teachmedia.
- Ray Duncan, Advances MS-DOS Programming, BPB
- Akshay Singh, Operating System, RGCSM Publications
- Ray Yao, Shell Scripting in 8 Hours

### Online Resources:

- DOS: <a href="https://www.javatpoint.com/ms-dos-operating-system">https://www.javatpoint.com/ms-dos-operating-system</a>
- Windows: <a href="https://www.javatpoint.com/windows">https://www.javatpoint.com/windows</a>
- Linux: https://www.javatpoint.com/what-is-linux
- Fundamentals of Computer, Windows Operating System: <a href="https://vikaspedia.in/education/digital-litercy/it-literacy-courses-in-associating-with-msup/computer-fundamentals">https://vikaspedia.in/education/digital-litercy/it-literacy-courses-in-associating-with-msup/computer-fundamentals</a>
- DOS: <a href="https://www.geeksforgeeks.org/ms-dos-operating-system/">https://www.geeksforgeeks.org/ms-dos-operating-system/</a>

PART -D: Assessm	ent and Evaluation		
Suggested Continuous	s Evaluation Methods:		
Maximum Marks:	50 Marks		
Continuous Internal A	Assessment (CIA): 15 Marks		
End Semester Exam (	ESE): 35 Marks		
Continuous Internal	Internal Test / Quiz-(2): 10 &	10 Better marks out of th	e two Test / Quiz
Assessment (CIA):	Assignment/Seminar +Attendance -		
(By Course Teacher)	Total Marks -	15 considered again	st 15 Marks
End Semester	Laboratory / Field Skill Perform		Managed by
Exam (ESE):	A. Performed the Task based or		Course teacher as
	B. Spotting based on tools & tec		
Name and Ciamtura of	C. Viva-voce (based on principle Convener & Members of CBoS:	e/technology) - 05 Marks	
	Convener & Members of CBos:	100	
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# FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28)

# DEPARTMENT OF COMPUTER SCIENCE COURSE CURRICULUM

D	AR	T- A: Introd	uction					
		am: Bachelor in Sc	, ,	Semester - I	Session: 2021-20			
	-	icate / Diploma / De			Session 2025	-26		
1	-	ourse Code	CSGE-01T		9			
2	-	ourse Title		mental and Operating	System			
3	1	ourse Type	DGE (Discipline	Generic Elective)				
4	Pr	erequisite	As per program					
5		ourse Learning atcomes (CLO)	<ul> <li>Study and us</li> <li>Organize file</li> <li>Acquire kno</li> <li>Develop infein advance to</li> </ul>	es and documents on stora wledge of ICT and Intern- ormation technology solu- rends of IT.	rminology of information tech age devices.	uirements		
6	Ci	edit Value	3 Credits	Credit = 15 Hours - 1	Learning & Observation			
7	To	otal Marks	Max. Marks:	100	Min Passing Marks:	40		
PA	RT	-B: Conten	t of the Cour	se				
		Total No. of Tea	ching-Learning P	eriods (01 Hr. per per	riod) - 45 Periods (45 Ho	ours)		
Un	iit		Тор	ics (Course content	s)	No. of Period		
		system, pingala and mathematics. Fundamental of C Computers, Block Major components capability of CPU, N	I the binary system,  Computer: History diagram of CPU, D of digital computers Microprocessors, Sin	of computer, Generation of sigital and Analogue constant, Types of digital comp	skhya system, Katapayadi n arithmetic and numerical on of computer, Types of imputers and its evolution. outers, Memory addressing tusers interface, hardware,	13		
I	I	Peripheral devices Printers, Plotters, S Programmable I/O	s: I/O Devices-Key canner, other Input/ port, Inbuilt I/O port	board, Mouse, Monitor output devices I/O Port s, Parallel and Serial por	, Impact and Non-Impact , Programmable and Non- ts, USB, IEEE 1394, AGP, I/O processor, Arithmetic	11		
I	II	**************************************						
IV	V	Operating System Introduction to DOS DOS, File Structure Basics of Windows,	Concepts: Evolution S, History Booting p e of DOS. Windows Windows Explorer, System, Structure of	n of Operating Systems: T rocess of DOS, Internal a Operating System: Hist Windows Accessories, (	Types of operating systems. and External commands of tory, Version of Windows, Control Panel. Introduction cd, md, rm, mv, cp, ls, cat,	11		
Keyw	ords			y, Operating System, DOS	S, Linux.			
	Mi	nd Signature of Con	THE RESIDENCE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE OWNER, NAMED IN		Test That we ) 30	rolm		

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### Text Books, Reference Books and Others

#### Text Books Recommended:

- P.K. Sinha, Computer Fundamentals, BPB Publication, Sixth Edition.
- V. Rajaraman, Fundamentals of Computers, PHI Sixth Edition.
- B. Ram, Computer Fundamentals Architecture and Organization, New Age International Publishers, Fifth Edition.
- Raja Raman V. Fundamental of Computers, Prentice Hall of India, New Delhi.
- Peter Baer Galvin, Greg Gagne, Operating System Concepts Abraham Silberschatz, 8th edition, Wiley-India, 2009.

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- Dr. Santosh Kumar Miri, Computer Fundamentals and Office Automation, Iterative International Publisher IIP.
- Alexis Leon and Mathews Leon, Fundamentals of Information Technology, Vikash Publication.
- Leon and Leon, Fundamental of IT, Leon Tec world.
- Aksoy and Denardis, Introduction to Information Technology, Cengage learning.
- Suresh K. Basandra, Computers Today, Galgotia Publications.
- Dennis P.Curtin, Kim Foley, Kunai Sen and Cathleen Morin, Information Technology The breaking wave, TMH.
- Kogent Solution Inc., OFFICE 2013 in Simple Steps, DremTech Press.
- Kogent Learning Solutions Inc., Access 2010 in Simple Steps
- · Andrew S. Tanenbaum, Modern Operating Systems, 3rd Edition, PHI
- Elmasri, Carrick, Levine, Operating Systems: A Spiral Approach TMH Edition
- Akshay Singh, Operating System, RGCSM Publications

### Online Resources:

- Indian Knowledge System and computer Science from Swayam portal https://onlinecourses.swayam2.ac.in/imb23 mg53/preview
- Fundamentals of Computer:
  - https://www.w3schools.blog/computer-fundamentals-tutorial
- Fundamentals of Computer, Memory:
  - https://www.tutorialspoint.com/computer\_fundamentals/index.htm
- Fundamentals of Computer, Windows Operating System:
  - https://vikaspedia.in/education/digital-litercy/it-literacy-courses-in-associating-with-msup/computer-fundamentals
- Fundamentals of Computer:
  - https://nptel.ac.in/courses/106/103/106103068/
- Introduction to Operating System:
  - https://www.w3schools.in/operating-system/tutorials/
- Introduction to Operating System:
  - https://www.javatpoint.com/windows.
- Peripheral Devices
  - https://www.tutorialspoint.com/what-are-peripheral-devices
- Windows:
  - https://www.javatpoint.com/windows
- Linux:
  - https://www.javatpoint.com/what-is-linux

3 De Conjok ar

Continuous Internal Assessment (CIA): 30 Marks End Semester Exam (ESE): 70 Marks  Continuous Internal Assessment (CIA): Assignment / Seminar - 10 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:  Dn. H. J. Hora Charles Ambers of CBoS:  Dn. H. J. Hora	Suggested Continuous Eva		
End Semester Exam (ESE):  Continuous Internal Assessment (CIA): (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. Hora Cheshy way  Light Marks  Ray  Agyult  Assignment / Seminar - 10 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 Cheshy way  Light Marks  Agyult  Agyult	Maximum Marks:	100 Marks	
Continuous Internal Assessment (CIA): (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. Hora  Chevre way  Land Marks  Assignment / Seminar - 10 obtained marks out of the two Test / Quiz obtained marks in Assignment shall be considered against 30 Marks  From Exam (ESE):  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  Chevre way  Again.		( )	
(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. Hora Chowly way  Light 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  Marks  Light 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  Marks  Light 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  Marks  Light 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  Marks  Light Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 = 20 Marks  Marks  Name and Signature of Convener & Members of CBoS:  Marks  Light Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 = 20 Marks  Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 = 20 Marks  Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 = 20 Marks  Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Mark; Q2. Short answer type- 5x4 = 20 Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Marks  Light Section A: Q1. Objective – 10 x1= 10 Marks  Marks  Light Section A: Q1. Objective – 10 x1= 10 Marks  Marks  Light Section A: Q1. Object	The second secon	Internal Test / Quiz-(2): 20 & 20	
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  Chevre way  Light Signature of Convener & Members of CBoS:		Tiong.	
In. H. S. Hoha Kron Jah J. Many Brat My Affects Ayute	End Semester Exam (ESE):  See See	ection A: Q1. Objective – $10 \text{ x1} = 10 \text{ Ma}$ ection B: Descriptive answer type qts., 1	urk; Q2. Short answer type- 5x4 = 20 Marks out of 2 from each unit-4x10=40 Marks
eneworman this feet of Many States Agute	Name and Signature of Con	wener & Members of CBoS:	, al
Swell, Storest Thaklers) Ansterial Ansterial Ansterial Rivers		is Jahr you	2 Prat OW APA
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# FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28) DEPARTMENT OF COMPUTER SCIENCE COURSE CURRICULUM

			Cou	JRSE CURRICUL	им			
P	ART	- A: Intro	oduction					
	_	m: Bachelor in S ate / Diploma / De	` '	Semester - I	Session: 2024. Session 202			
1	Cou	rse Code	CSGE-01P		Session 202	.5 =0		
2	Cou	rse Title	Lab 1: Operating	g System (DOS, Wind	lows, Linux)			
3	Cou	rse Type	Practical					
4	Prer	equisite	As per program					
At the end of this course, the students will be able to:  • Understand the fundamental concepts of DOS, Windows and Operating System. • Understand basics of DOS commands and its types. • Understand features of Windows Operating system. • Understand comparative features of DOS and Windows Operating sy Explore functionality of Linux.  6 Credit Value  1 Credits Credit = 30 Hours Laboratory or Field Learning/Training								
		Credit Value 1 Credits   Credit = 30 Hours Laboratory or Field Learning/Train						
7		l Marks	Max. Marks:	50	Min Passing Marks:	20		
A	RT -		nt of the Co		: 1			
		Total No.			iods: 30 Periods (30 Hours	No. of		
	dule st of		То	pics (Course conte	nts)	Period		
	etical riment	2. Create on 3. Demonstr 4. Demonstr 5. Introducti 6. Study and 7. Working 8. Use of va. 9. Explainin 10. Working 11. Create a f 12. Write a L 13. Demonstr 14. Create Di directory. 15. Delete abo 16. Explainin	e file and rename fir rate all Internal DOS rate all external DOS on to Windows and luse of Desktop, m with Files and Fold rious window appli g control panel opti with printers. file using Linux con inux command whi rate use of grep com- irectory using Linual ove created files an g various flavors of	cations: Calculator, no ions.  nmand.  ch lists all files and dir nmand.  ux command and creat d directory using Linux f Linux.	put. put. put. put. pntrols. n, Task bar. tepad and MS-Paint. ectories.  ate 3 different files in this	<b>30</b>		
an	1	Hote ton	Jah Jah	of CBoS:	I M AND	- Aizu		

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### Text Books, Reference Books and Others

### Text Books Recommended:

- Rusell A Stultz, MS DOS 6.22 BPB Publications
- Brain Underdahl, Teach yourself Windows 2000, Wiley Publications.

### Reference Books Recommended:

- Peter Norton, Maximizing Windows, Teachmedia.
- Ray Duncan, Advances MS-DOS Programming, BPB
- Akshay Singh, Operating System, RGCSM Publications
- Ray Yao, Shell Scripting in 8 Hours

#### Online Resources:

- DOS: <a href="https://www.javatpoint.com/ms-dos-operating-system">https://www.javatpoint.com/ms-dos-operating-system</a>
- Windows: https://www.javatpoint.com/windows
- Linux: https://www.javatpoint.com/what-is-linux
- Fundamentals of Computer, Windows Operating System: <a href="https://vikaspedia.in/education/digital-litercy/it-literacy-courses-in-associating-with-msup/computer-fundamentals">https://vikaspedia.in/education/digital-litercy/it-literacy-courses-in-associating-with-msup/computer-fundamentals</a>
- DOS: https://www.geeksforgeeks.org/ms-dos-operating-system/

and Evaluation	
Evaluation Methods:	
50 Marks	
ssessment (CIA): 15 Marks	
SSE): 35 Marks	
Internal Test / Quiz-(2): 10 & 10 Assignment/Seminar + Attendance - 05 Total Marks - 15	+ obtained marks in Assignment shall be considered against 15 Marks
Laboratory / Field Skill Performand A. Performed the Task based on lab B. Spotting based on tools & technol C. Viva-voce (based on principle/tech	logy (written) – 20 Marks   Course teacher as per lab. status
Sheriser & Members of CBoS:  Krin Jah (C)  Sheriser of CBoS:  Sheriser	my Chal M Agule ANJECTA KUJU
	Evaluation Methods: 50 Marks ssessment (CIA): 15 Marks SE): 35 Marks Internal Test / Quiz-(2): 10 & 10 Assignment/Seminar + Attendance - 05 Total Marks - 15 Laboratory / Field Skill Performan A. Performed the Task based on lab B. Spotting based on tools & techno C. Viva-voce (based on principle/tec

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

		Co	DURSE CURRIC	CULUM							
P	ART-A: Introdu	ction									
	rogram: Bachelor in S ertificate / Diploma / D	3	Semester — I/III/V	Session: 2024-	2025						
1	Course Code	CSVAC-01		Session 202	25-26						
2	Course Title	Artificial Intell	ligence		The second section of the section						
3	Course Type	Value Addition	Course (VAC)								
4	Prerequisite	As per program									
5	Course Learning Outcomes(CLO)										
6	Credit Value	Credit Value 2 Credits Credit = 15 Hours -Learning & Observation									
7	Total Marks	Max. Marks:	50	Min Passing Marks: 20	)						
PA	RT – B: Conten	t of the Cou	irse		E-10-46-1-46-1-46-1-46-1-46-1-46-1-46-1-4						
	Total No. of Tea	aching- Learning	Periods (01 Hr. per p	period) - 30 Periods (30 H	ours)						
Un			(Course contents)		No .of Period						
I	Introduction: Ove Applications of AI AI.	erview of Artificia in various domain	al Intelligence (AI), Fo as, AI in India, Impact an	oundations of AI, Areas and examples of AI, Future of	8						
IJ	Advanced AI: Bas Natural Language I	sic Concept of Ma Processing (NLP),	achine Learning, Deep Speech recognition, Go	Learning, Computer vision, enerative AI Applications.	8						
II											
IV	Commerce, Industr	Application of AI: Agriculture, Healthcare, Environment, Teaching-Learning, E-Commerce, Industry, Research etc.									
eywo	Processing (NLP), Co	onversational AI, Ge	enerative AI.	rning, Computer Vision, Natu	ral Language						
D	chairman Sure	ok Thakwas	Should by	Bral My	ANJECTA						
A	RT-C: Learning	Resources	Te	chiver of							
Te	xt Books, Reference E	Books and Others		V							
ext	Books Recommended:										

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

32 My De Colyption

### 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&inde x=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: Assess	ment and E	valua	tion		
Suggested Continuous	Evaluation Meth	ods:			
MaximumMarks:		50 Ma	rks		
Continuous Internal As	ssessment(CIA):	15 Ma	rks		
End Semester Exam(ES	SE):	35 Mai	rks		MARK SHIPS OF THE PARTY OF THE
Continuous	Internal Test / Q	uiz-(2): 1	0 + 10	Better marks out o	f the two Test / Quiz +
InternalAssessment(	Assignment/Sem	ninar-	05	obtained marks in	n Assignment shall be
CIA):	Total Marks -		15	considered a	ngainst 15 Marks
(By Course Teacher)					
End Semester				On spot Assessment	Managed by
Exam (ESE):				ned skill - 20 Marks	Coordinator as per
(202).	B. Spotting base				skilling
	C. Viva-voce (b	ased on p	rinciple/tec	hnology)- 05 Marks	
Name and Signature of C	Convener & Meml	ers of C	BoS:	^- 1	
Dr. M.S. Hala 10	Of ly	110.	~ <sub>1</sub> /\	(Chal	/
Dr. H.S. Hota Kn	y gall	A	m	)	MA Shall
- rechange			10/2		Type And The A

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

P	AR'	T- A: Introdu	ction						
	C	am: Bachelor in S	( /	Sem	ester - II	Session: 2024-20	25		
(Ce	rtifi	cate / Diploma / D	egree/Honors)			Session 2025-2			
1	Co	ourse Code	CSSC-02T			0 0001011 = 0 = 0			
2	Co	ourse Title	Programming in	n C++					
3	Co	ourse Type	DSC (Discipline	Specific Cour	se)				
4	Pr	erequisite	As per program						
5	Oı	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	-	otal Marks	Max. Marks:	100	N	Ain Passing Marks:	40		
A	RT		nt of the Co						
		Total No. of Tea	aching-Learning	Periods (01 H	r. per perio	d) - 45 Periods (45 Ho	-		
Un	it			pics (Course			No. of Perio		
I		file, Executable fil Testing, Debuggin Structure of C pr Operators, Data T Precedence and As	e, Header file, Lang, Linker and Loaderogram, C Token ypes, Control structure, Array a functions, function	guage Translator er, Algorithms, I s: Identifiers ture: Conditiona and its types, Po	r- Assembler Flow Charts, Keywords, Il and loopin inter, Functi	am, Source file, Object, Interpreter, Compiler, History of C language, Constants, Variables, g statements, Operator ons: Standard Library and Call by reference,	12		
I		Introduction to programming, Fea objects, Access Sp	Object Oriented tures of C++, Struct ecifiers: Private, Pu	ure of C++ prog blic, Protected, i	ram, Data typ nline function	of object oriented bes, structure, class and ns, static data and static ameterized constructor,	11		
II	I	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.							
IV	/	Input-Output and I/O, Object I/O, F Exception Handli	I File Handling: 1/ ile Pointer, Opening	O classes, File a g and Closing file 'emplate Librai	nd Stream cla e.	nsses, Char I/O, String n, Exception basics, try.	11		
					ant Daliman	hism, Inheritance, Constru			
Keywe	ords	Template.	teyworu, Array, 1 un	ction, Class, Obj	есі, Роіутогр		uctor,		

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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=0jpOwc4d-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

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Maximum Marks:	Evaluation Methods: 100 Mark	(S	
Continuous Internal Ass			
End Semester Exam (ES			
Continuous Internal	Internal Test / Quiz-(2): 20		Better marks out of the two Test / Quiz +
Assessment (CIA):	Assignment / Seminar -	10	obtained marks in Assignment shall be
(By Course Teacher)	Total Marks -	30	considered against 30 Marks
End Semester Exam	Two section - A & B		
(ESE):	Section A: Q1. Objective - 10	x1 = 10 N	Tark; Q2. Short answer type- $5x4 = 20$ Marks
	Section B: Descriptive answer	type qts.,	1 out of 2 from each unit-4x10=40 Marks
ame and Signature of Co	onvener & Members of CBoS	5:	<b>Ω</b> .
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# FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28) DEPARTMENT OF INFORMATION SCIENCE COURSE CURRICULUM

PA	RT-	A: Introdu	ction				
		: Bachelor in Scie	` '	Semester - II	Session: 2024-2	025	
	tificate / Diploma / Degree)				Session 202	25-26	
1	- CSSC 021						
2				mming in C++			
3	Course Type DSC						
4	Pro	erequisite	As per progran				
5 Course Learning Outcomes (CLO)			<ul> <li>At the end of this course, the students will be able to:</li> <li>Understand the fundamental programming concepts and methodologic which are essential to create good C++ programs.</li> <li>Code, test, and implement a well-structured, robust computer programs using the C++ programming language.</li> <li>Write reusable modules (collections of functions).</li> <li>Understand design/implementation issues involved with variab allocation and binding, control flow, types, subroutines, parameter passing.</li> <li>Develop an in-depth understanding of functional, logic, and object oriented programming paradigms.</li> </ul>				
6	Cr	edit Value	1 Credits C	edit =30 Hours Labora	tory or Field Learning	Trainin.	
7	To	tal Marks	Max. Marks:		Iin Passing Marks:	20	
PAR	RT -E	3: Content of	of the Cours	e			
		Total No. of	learning-Trainin	g/performance Period	ls: 30 Periods (30 Hour	·s)	
Mo	dule		Тор	ics (Course content	rs)	No. of Period	
Prac Expe	st of ctical riment s.	<ol> <li>Write a progration</li> </ol>	am in C++ to find am in C++ to find am in C++ to find ile loop.  am in C++ for Mu am in C++ to store am in C++ to store am in C++ to calculate method.  am in C++ to find cts.  am in C++ to mu ions.	ition of two numbers us the biggest number between the factorial value of ious arithmetic operation of two 3X3 is five books of information as in the sum and average of the sum and av	ween two numbers. Tany entered number ons using switch case matrices. It ion using structure. It ion using union. It ing call by value and of five numbers using one private and public	30	

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- 13. Write a program in C++ for multiple inheritance.
- 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.

Name and Signature of Convener & Members of CBoS:

Dr. H.S. Hotel Krun Dell Man Signature of Convener & Members of CBoS:

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Manual Signature of Convener & Members of CBoS:

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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=GtsBZ5c1-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

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Suggested Continuous Evaluation Methods: Maximum Marks: 50 Marks Continuous Internal Assessment (CIA): 15 Marks End Semester Exam (ESE): 35 Marks Continuous Internal Internal Test / Quiz-(2): 10 & 10 Better marks out of the two Test / Quiz Assessment (CIA): Assignment/Seminar +Attendance - 05 + obtained marks in Assignment shall be (By Course Teacher) Total Marks -15 considered against 15 Marks End Semester Exam Laboratory / Field Skill Performance: On spot Assessment Managed by Course teacher A. Performed the Task based on lab. work - 20 Marks (ESE): as per lab. B. Spotting based on tools & technology (written) - 10 Marks C. Viva-voce (based on principle/technology) - 05 Marks status Name and Signature of Convener & Members: 1. Dr. H.S. Hota 2. Dr. Swati Jain 3. Dr. Surendra Patel 4. Dr. S. K. Sahu 5. Mr. Prakash Kumar Tripathi 6. Dr. Anil Kumar Sahu Mr. L.K. Gavel

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

	-						
P	AR'	T- A: Introdu	ction				
Program: Bachelor in Science (CS) (Certificate / Diploma / Degree/Honors)			Semes	ler - II	Session: 2024-2025		
1 Course Code CSGE-02T					Session 2025	5-26	
2	Co	Course Title Programming in C++					
3	Co	ourse Type		DGE (Discipline Generic Elective)			
4	-	erequisite	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.  3 Credits Credit = 15 Hours - Learning & Observation				
7	-	otal Marks	Max. Marks:	100			40
	-		nt of the Co		1,11	in I ussing ivial ks.	
A	KI					45 Davidada (45 Ma	
		Total No. of Tea	ching-Learning	Periods (01 Hr.	per perioa)	- 45 Periods (45 Ho	-
Un	it		To	pics (Course c	ontents)		No. o Perio
I		file, Executable file Testing, Debugging Structure of C pro	e, Header file, Lang g, Linker and Loade ogram , C Token	guage Translator- er, Algorithms, Flo s: Identifiers, 1	Assembler, low Charts, H Keywords, O	n, Source file, Object Interpreter, Compiler, Listory of C language, Constants, Variables,	
		Precedence and As and User defined	sociativity, Array a functions, function	and its types, Point	ter, Function	statements, Operator ns: Standard Library d Call by reference,	12
IJ	I	Precedence and As and User defined recursive functions.  Introduction to programming, Feat objects, Access Spefunctions. Constru	sociativity, Array a functions, functions, String functions.  Object Oriented ures of C++, Struct scifiers: Private, Pu	nnd its types, Point in prototype, Call id Programming: ture of C++ programblic, Protected, inl	ter, Function by value and Concept m, Data type ine functions	ns: Standard Library	11
II		Precedence and As and User defined recursive functions.  Introduction to programming, Feat objects, Access Spefunctions. Constructions. Constructor.  Inheritance and Palpheritance: Single Polymorphism: Defoverloading, const	sociativity, Array a functions, functions, functions, String functions.  Object Oriented ures of C++, Struct ecifiers: Private, Puctor: Default constolymorphism: Default, Multilevel, Multilevel, Minition, Compile tiructor overloading	Ind its types, Point in prototype, Call in prototype, Call in Programming: The control of the co	ter, Function by value and Concept m, Data type ine functions ructor, Parar f base and defical and it: Function corphism: Vi	ns: Standard Library d Call by reference, of object oriented s, structure, class and s, static data and static	
	n -	Precedence and As and User defined recursive functions.  Introduction to programming, Feat objects, Access Spefunctions. Constru Destructor.  Inheritance and P Inheritance: Single Polymorphism: De overloading, const virtual function. Inl Input-Output and I/O, Object I/O, Fi Exception Handlin catch and throws keeping to the programme of the prog	sociativity, Array a functions, functions, functions, String functions.  Object Oriented ures of C++, Struct ecifiers: Private, Puctor: Default constructor Default constructor, Compile to the finition, Compile to the function, friend fine function, friend File Handling: I/O le Pointer, Opening and Standard Teywords, Template.	Ind its types, Point in prototype, Call in prototype, Call in Programming: The of C++ programblic, Protected, information, Concept of Multiple, Hierarchime polymorphisms, Runtime polymorphisms, Runtime polymorphisms, Runtime polymorphisms, Runtime polymorphisms, and Closing file in Complate Library:	ter, Function by value and Concept m, Data type ine functions ructor, Parar f base and defical and in Function corphism: Villass.  Stream class: Definition,	ns: Standard Library d Call by reference, of object oriented s, structure, class and s, static data and static neterized constructor, erived class, Types of Hybrid Inheritance, overloading, Operator	11

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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

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Suggested Continuous E	ment and Evaluation valuation Methods:	
Maximum Marks:	100 Marks	
Continuous Internal Ass	sessment (CIA): 30 Marks	
End Semester Exam (ES		
Continuous Internal	Internal Test / Quiz-(2): 20 +20	Better marks out of the two Test / Quiz +
Assessment (CIA):	Assignment / Seminar - 10	obtained marks in Assignment shall be
(By Course Teacher)	Total Marks - 30	considered against 30 Marks
End Semester Exam		
		Mark; Q2. Short answer type- $5x4 = 20$ Marks
Name and Signature of Co Dr H. & Hole Chedrmon	onvener & Members of CBoS:  Kun Jah Jah Jah  DL Theklur Shurten Jah	Marks  Mal  Marks  Mark
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# FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28) DEPARTMENT OF INFORMATION SCIENCE COURSE CURRICULUM

PA	RT-	A: Introduc	ction				
	0	a: Bachelor in Science / Diploma / Degre	. ,	Semester	- II	Session: 2024-2 — Session 202	
1	1	urse Code	CSGE-02P			Session 202	13-20
2	Co	urse Title	Lab 2: Progra	mming in C++			
3	Co	urse Type	Practical				
4		Prerequisite As per program			TO AND		
5		urse Learning stcomes (CLO)	<ul> <li>Understand which are</li> <li>Code, test using the write reus</li> <li>Understand allocation passing.</li> <li>Develop as</li> </ul>	essential to create t, and implement C++ programming sable modules (co and design/implen and binding, co	al programme good C++ a well-struction of the programme glanguage. Illections of the protection of the	ing concepts and meth programs. tured, robust compute	r program variable parameter
6	Cr	edit Value	1 Credits C	redit =30 Hours	Laborator	y or Field Learning	Training/
7		tal Marks	Max. Marks:			Passing Marks:	20
Prac Exper	et of etical riment		m in C++ to find am in C++ to fin le loop.	the biggest num d the factorial v	ber betwee value of an	n two numbers. y entered number	Period
		statements. 5. Write a progra 6. Write a progra 7. Write a progra 8. Write a progra call by referen 9. Write a progra class and object 10. Write a progra member functi 11. Write a progra operator 1 1 2 1 2 3 1 2 3 4	m in C++ for Mu m in C++ to store m in C++ to store m in C++ to calc ce method. m in C++ to find cts. m in C++ to mu ons.	Itiplication of twe five books of in a six employee in the sum and availably two numbers.	vo 3X3 man information information erest using verage of finances were using	trices. using structure. using union. call by value and	30
		1 2 3 4 5 12. Write a progra	m in C++ for con	structor and Des	structor.		

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- 13. Write a program in C++ for multiple inheritance.
- 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.

Name and Signature of Convener & Members of CBoS:

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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)

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   https://www.youtube.com/watch?v=KG4hjVDw-p8&list=PLmp4ylk-B4KrM9uOEdvPlVFUkU3jNc6D2&index=2
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- 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
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- Dynamic Memory Management NPTEL https://www.youtube.com/watch?v=lkFK2X6qIc0&list=PLmp4ylk-B4KrM9uOEdvPIVFUkU3jNc6D2&index=18
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- 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

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Suggested Continuous	Evaluation Methods:		
Maximum Marks:	50 Marks		
Continuous Internal A End Semester Exam (F			
Continuous Internal Assessment (CIA): (By Course Teacher)	Internal Test / Quiz-(2): 10 & Assignment/Seminar +Attendance - Total Marks -		assignment shall be
End Semester Exam (ESE):	A. Performed the Task based on B. Spotting based on tools & te C. Viva-voce (based on princip	mance: On spot Assessment n lab. work - 20 Mark chnology (written) – 10 Mark	Managed by Course teacher as per lab.
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# FOUR YEAR UNDERGRADUATE PROGRAM (2024 – 28) DEPARTMENT OF COMPUTER SCIENCE COURSE CURRICULUM

D.	oara	m. Dozhalan se	aionas (CC)				
Program: Bachelor of Science (CS) (Certificate / Diploma / Degree)				Semester - II/IV/V/VI Session: 202 Session 20			
1	Course Code CSSEC-01				0 0001011 =0	,	
2	Cou	rse Title	se Title Multimedia and Animation				
3	Cou	rse Type	Skill Enhance Co	Skill Enhance Course (SEC)			
4	Prei	requisite	As Per Program				
5		After Completing this course, students will be able to:  Understand about Multimedia Framework.  Work with Adobe Flash.  Create games using Flash.  Film editing using VFX.					
6	Cred	dit Value			oretical Learning and		
7	Tota	ıl Marks	(1C+1C) Max. Marks:		ratory or Field learning/Tra		
	ART		nt of the Co	50	Min Passing Marks:	20	
		1 Introduction			,	Perio	
Th	eory ntent	frameworks 2. Introduction visualizatio	n to multimedia, i. n to flash, creat	ing games, making	multimedia software and presentations, animation,	15	
		3. Introduction to VFX, VFX compositing and editing, animation, motion, modelling artist, texture artist, painting, rigging.					
Lab	/Field	<ol> <li>Create and I</li> <li>Making pres</li> </ol>	Edit 2D animation u Edit 3D animation u sentation using Flas mes using Flash.	ising Flash.			
	ining ntent	<ul><li>5. Audio/video</li><li>6. Film editing</li></ul>	D Editing using VFX  Using VFX.  Using VFX.	ζ.		30	
		8. Motion graphics designing using VFX.					
Key	words	Multimedia, Ani	mation, Flash, VFX	i			
Dr	· 145	Signature of Con	nvener & Members	of CBoS:	Gral MI/	Mel	

Johnson & Bolyde

Text Books, Reference Books and Others

### Text Books Recommended:

- Brian Underdahl, Macromedia Flash MX: The Complete Reference, McGraw-Hill
- Ibis Fernandez, Flash Animation and Cartooning: a creative guide
- Tony white, The animators to Adobe Flash.
- Ian failes, Masters of FX.

### Reference Books Recommended:

- Jan Marrelli, A Guide to Web Development Using Adobe Dreamweaver CS3 with Fireworks and Flash, Lawrenceville Press
- Codex Jeffrey A. Okun and Susan Zwerman, The VES handbook of Visual Effects: Indutry Standard VFX Practices and Procedures.

### Online Resources:

Introduction to Multimedia:

https://www.javatpoint.com/multimedia-

<u>definition#:~:text=Multimedia%20combines%20several%20media%20formats,users%20engage%20</u> with%20the%20information.

Introduction to Multimedia:

https://www.w3schools.com/html/html media.asp

Introduction to Flash:

https://www.javatpoint.com/what-is-

flash#:~:text=Adobe%20Flash%20is%20usually%20installed,of%20disabling%20the%20browser%20extension.

• Introduction-To-Macromedia-Flash-8:

https://www.geeksforgeeks.org/introduction-to-macromedia-flash-8/

### PART -D: Assessment and Evaluation

Suggested Continuous	<b>Evaluation Methods:</b>		
Maximum Marks:	50 Marks		
Continuous Internal A	ssessment (CIA): 15 Marks		
End Semester Exam (1	ESE): 35 Marks		
Continuous Internal	Internal Test / Quiz-(2): 10 & 10	Better marks out of th	e two Test / Quiz
Assessment (CIA):	Assignment/Seminar +Attendance - 05	+ obtained marks in A	ssignment shall be
(By Course Teacher)	Total Marks - 15	considered again	st 15 Marks
End Semester Exam (ESE):	A. Performed the Task based on lab. B. Spotting based on tools & technol C. Viva-voce (based on principle/tec	. work - 20 Marks logy (written) - 10 Marks	Managed by Course teacher as per lab. status

Name and Signature of Convener & Members of CBoS:

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