

Government Millennium Polytechnic, Chamba

Department: Computer Engineering

4th Semester, Information Security

Lecture No.	Topic Name
Unit - 1 : Introduction	
10 hours	
1	Information Security, Cybersecurity, Need for Cybersecurity
2	Aspects of Information Security (PAIN)
3	Malware - Worm, Virus, Trojan Horse, Bots & Botnets
4	DCS
5	Ransomware, Spyware
6	Keylogger, Spamming and Phishing
7	Security Features of Operating Systems - Authentication,
8	DCS
9	Logs, Audit Features, File System Protection, User Privileges
10	RAID Options, Anti-Virus Software, OS security Patches
Unit-2: Basics of Cryptography	
10 hours	
11	Cryptography,
12	DCS
13	Symmetric and Asymmetric Ciphers
14	Substitution Cipher, Caesar Cipher
15	Transposition Technique
16	DCS
17	Steganography,
18	Stream and Block Ciphers (Introduction Only),
19	Public Key cryptography
20	DCS
Unit-3: Cyber security framework	
10 hours	
21	NIST Definition of Computer
22	Security, CIA Triad
23	NIST Framework for Cybersecurity
24	DCS
25	Cybersecurity Framework Components
26	Framework Core - Functions
27	Categories, and subcategories
28	DCS
29	Framework Implementation Tier
30	Framework Implementation Tier
Unit -4: Information security Architecture	
12 hours	
31	OSI Security Architecture
32	DCS

33	Definitions of Security Attack, Security Mechanism	
34	Security Service, Threat & Attack	
35	Active and Passive Attacks, Security Services	
36	DCS	
37	Authentication, Access Control, Data Confidentiality	
38	Non-repudiation; Security Mechanisms - Encipherment, Data Integrity	
39	Digital Signature, Access Control, Data Integrity	
40	DCS	
41	Authentication Exchange, Traffic Padding,	
42	Routing Control and Notarization	
	Unit-5: Network and Internet Security	14 hours
43	Network Classification : Trusted, Semi-trusted	
44	DCS	
45	Untrusted & Unknown Networks; Network Attacks classification	
46	Interruption, Interception, Modification & Fabrication;	
47	Network Attacks : Password Stealing, Packet Sniffers, IP Spoofing	
48	DCS	
49	Denial-of-Service (DoS), Man-in-Middle, Session Hijacking;	
50	Security Weaknesses in Networks, Network Access Control, IEEE 802.1x	
51	VLAN, Firewall, Extensible Authentication Protocol, Network Security Protocols - TLS	
52	SSL, HTTPS, IPSec and SSH, Ingres Filtering, VPN, Firewalls, Internet Security Threats : Privacy Breach	
53	DCS	
54	DNS Spoofing, Email Spam, Cross-site Scripting (XSS); Web Browser Security Settings	
55	Cookies, Website, Certificates, Browsing History, Plugins, Parental Control,	
56	Form Autofill, CAPTCHA; Strong password	
	Unit-6: Cyber Laws	09 hours
57	DCS	
57	Cyber Crime, Cyber Crime against Person, Property and Government	
58	Major Provisions under Indian IT Act-2000 (Sections 65, 66, 67, 69);	
59	Intellectual Property Rights	
60	DCS	
61	Patent Law,	
62	Copyright law	
63	Digital Signatures	
64	DCS	

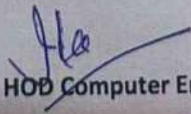
Subject Teacher



Arun Seth

Lecturer Computer Engg.

GMPC Chamba (H.P.)



HOD Computer Engg.

Department: Computer Engineering
4th Semester, Data Structures & Algorithms

Lecture No.	Topic Name	
	Unit 1: Introduction	12 hours
1	Algorithms-Definition, Characteristics	
2	Efficiency, Notations	
3	Asymptotic, Big-Oh, Omega, Theta Notation	
4	DCS	
5	Data Types	
6	Data Structures	
7	Characteristics	
8	DCS	
9	Types- Linear, Non-linear	
10	Operations	
11	Efficiency	
12	DCS	

	Unit 2: Arrays, Structures and Pointers	16 hours
13	Arrays, One dimensional array	
14	Multi-Dimensional Arrays	
15	One Dimensional Arrays-Memory representation	
16	DCS	
17	Traversal, Insertion and Deletion	
18	Sorting and Searching	
19	Two dimensional Arrays- Memory representation	
20	DCS	
21	Implement Matrices using Two dimensional Arrays	
22	Matrix operations - Addition, Subtraction	
23	Matrix operations - Multiplication, Transpose, Structure accessing	
24	DCS	
25	Structure members using (.) and (->) operators, Self referencing structure	
26	Pointers- Dynamic Memory allocation using Malloc, calloc, free	
27	realloc, Manipulate arrays using pointers	
28	DCS	

	Unit -3: Sorting and searching	12 Hours
29	Searching techniques - Linear search	
30	Searching techniques - Binary search	
31	Sorting techniques - Selection Sort	
32	DCS	
33	Sorting techniques - Insertion sort	
34	Sorting techniques - Bubble sort	
35	Sorting techniques - Quick sort	
36	DCS	
37	Sorting techniques - Quick sort continues	

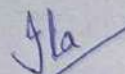
38	Sorting techniques - Merge sort	
39	Efficiency of Sorting Algorithms	
40	DCS	
Unit -4: Linear Data structures		12 hours
41	Linked List - Representation	
42	Advantages and Disadvantages	
43	Implementation, Operations	
44	DCS	
45	Doubly Linked list	
46	Stacks, Stack operations - Push, Pop	
47	Implementation of Stack using Arrays and Linked list	
48	DCS	
49	Queues, Queues operations	
50	Implementation of Queue using Arrays	
51	Implementation of Queue using Linked list	
52	DCS	

Unit-5: Non-Linear Data structures		12 Hours
53	Tree, Tree terminology - Node, root, Parent	
54	Tree terminology - Children, Siblings, Edge, Leaves	
55	Binary Tree, Binary tree representation	
56	DCS	
57	Binary tree traversal	
58	Binary search tree	
59	Graphs, Graphs Terminology	
60	DCS	
61	Directed Graphs, Weighted Graphs	
62	Graphs implementation using Adjacency Matrix	
63	Graphs implementation using Adjacency List	
64	DCS	

Subject Teacher



Arun Seth
Lecturer Computer Engg.
GMPC Chamba (H.P.)



HOD
Computer Engineering

Department.: *Computer Engineering*
Subject: Essence of Indian Knowledge & Tradition

Course Learning Objectives	The objective of this course is to expose the students with the concepts of Indian traditional knowledge and to make them appreciate the importance of the roots of indigenous knowledge system.
Course Outcomes	After completing this course the students will be able to: CO-1. Identify the concept of Indian Knowledge System (IKS). CO-2. Understand the need and importance of protecting traditional knowledge. CO-3. Compare the Indian traditional knowledge and modern science. CO-4. Understand the use of Yoga in stress management, mental health, mindfulness, healthy eating, weight loss and quality sleep. CO-5. Aware of the general knowledge of Himachal Pradesh.
Lect.No	Topic Number
	Unit 1 Indian Knowledge System (IKS):-----15 Marks
1	<input type="checkbox"/> Introduction and Function of Indian Knowledge System(IKS). <input type="checkbox"/> The Basic Structure of Indian Knowledge System(IKS) (only Introduction)
2	1. The 4 Vedas, Namly ऋग्वेद (Rigveda) ,यजुर्वेद (Yajurveda),सामवेद (Samaveda) ,अथर्ववेद (Atharvaveda) .
3	2. The 4 UpVedas, Namely आयुर्वेद (Ayurveda (health-care)), धनुर्वेद (Dhanurveda (archery)), गंधर्ववेद (Gandharva-veda (dance, music etc.)) and थापर्वेद (Sthapatyaveda (architecture)).
4	3. The 6 Vedagangs ,namely Shiksha (शिक्षा), Kalpa (कल्प), Vykarana (व्याकरण), Chhandas (छंदस), Nirukta (निरुक्त), and Jyotisha (ज्योतिष).
5	4. Itihasa (इतिहास)(Ramayana रामायण and Mahabharata महाभारत) and Purana पुराण (Vishnupurana विष्णुपुराण, Bhagavata Purana (भागवतपुराण) etc.)
6	5. Dharmashastra धर्मशास्त्र. (Manusmriti मनुस्मृति, Yajnavalkya-smriti याज्ञवल्क्यस्मृति, etc.).
7	6. Darshan दर्शन (आलोचनात्मक).
8	7. Nyaya न्याय (Logic तर्कशास्त्र) and Epistemology (ज्ञानमीमांसा).
	Unit 2 : Modern Science -----12 Marks
9	● Modern science: Introduction, Characteristics, importance and Example-----contd.
10	● Modern science: Introduction, Characteristics, importance and Example
11	● Difference between modern Science and Indian knowledge system
12	● Difference between modern Science and Indian knowledge system
13	● Role of IKS in modern science
14	● Role of IKS in modern science
	Unit 3 : Traditional knowledge----- 9 Marks
15	● Traditional knowledge: Definition, nature, characteristics, scope and importance
16	● Indigenous Knowledge (IK): characteristics
17	● Traditional knowledge vis-a-vis Indigenous knowledge
18	● Traditional knowledge Vs western knowledge
19	● The need for protecting traditional knowledge
	Unit 4 : Yoga and Holistic Health Care-----15Marks
20	● Yoga: Meaning and Importance of Yoga
21	● Yoga and physical health, Yoga and psychological health, Yoga and intellectual health, Yoga and spiritual health, Yoga and social approach
22	● Introduction to Ashtanga Yoga, Yogic Kriyas (Shat Karma)

23	• Pranayama and its types; Active lifestyle and stress management through Yoga
24	• Physical Fitness, Health and wellness: Meaning and Importance of Wellness,
25	• Components of Wellness, Health and physical Fitness;
26	• Traditional sports & Regional Games for promoting wellness;
27	• Leadership through Physical Activity and Sports; Introduction to First Aid.
	Unit 5 : Himachal Pradesh: A Basic Information----- 9 Marks
28	• History, Culture, Heritage/ Tradition, Customs & Manners
29	• Regional Knowledge, Geographical Features, Constitutional History-----contd.
30	• Regional Knowledge, Geographical Features, Constitutional History
31	• Tourism Place & Scope
32	• Festivals and Fairs

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Department: *Computer Engineering*
 Subject: Indian Constitution

Lect.No	Topic Number
Unit 1 Introduction to Constitution:(8 Hours)	
1	<input type="checkbox"/> History of making of the Indian Constitution.
2	<input type="checkbox"/> Meaning and importance of the Constitution.
3	<input type="checkbox"/> Salient features and Preamble of Indian Constitution. Contd....
4	<input type="checkbox"/> Salient features and Preamble of Indian Constitution.
5	<input type="checkbox"/> Fundamental rights- meaning and limitations. Contd.....
6	<input type="checkbox"/> Fundamental rights- meaning and limitations.
7	<input type="checkbox"/> Directive principles of state policy and Fundamental duties -their enforcement and their relevance. Contd....
8	<input type="checkbox"/> Directive principles of state policy and Fundamental duties -their enforcement and their relevance.
Unit 2 Union Government: (8 Hours)	
9	<input type="checkbox"/> Structure of Union Government.
10	<input type="checkbox"/> Structure of Union Government.
11	<input type="checkbox"/> Union Executive- President, Vice-president, Prime Minister, Council of Ministers. Contd...
12	<input type="checkbox"/> Union Executive- President, Vice-president, Prime Minister, Council of Ministers.
13	<input type="checkbox"/> Union Legislature- Parliament and Parliamentary proceedings. Contd...
14	<input type="checkbox"/> Union Legislature- Parliament and Parliamentary proceedings.
15	<input type="checkbox"/> Union Judiciary-Supreme Court of India – composition and powers and function. Contd...
16	<input type="checkbox"/> Union Judiciary-Supreme Court of India – composition and powers and function.
Unit 3 State and Local Governments:(10 Hours)	
17	<input type="checkbox"/> Structure of State Government.
18	<input type="checkbox"/> Structure of State Government. Contd.....
19	<input type="checkbox"/> State Executive- Governor, Chief Minister, Council of Ministers.
20	<input type="checkbox"/> State Executive- Governor, Chief Minister, Council of Ministers.
21	<input type="checkbox"/> State Legislature-State Legislative Assembly and State Legislative Council. Contd.....
22	<input type="checkbox"/> State Legislature-State Legislative Assembly and State Legislative Council.
23	<input type="checkbox"/> State Judiciary-High court. Contd.....
24	<input type="checkbox"/> State Judiciary-High court.
25	<input type="checkbox"/> Local Government-Panchayat raj system with special reference to 73rd and Urban Local Self Govt. with special to74th Amendment. Contd.....
26	<input type="checkbox"/> Local Government-Panchayat raj system with special reference to 73rd and Urban Local Self Govt. with special to74th Amendment.
Unit 4 Election provisions, Emergency provisions, Amendment of the constitution: (6Hours)	
27	<input type="checkbox"/> Election Commission of India-composition, powers and functions and electoral process. Contd.....
28	<input type="checkbox"/> Election Commission of India-composition, powers and functions and electoral process.
29	<input type="checkbox"/> Types of emergency-grounds, procedure, duration and effects. Contd.....
30	<input type="checkbox"/> Types of emergency-grounds, procedure, duration and effects.
31	<input type="checkbox"/> Amendment of the constitution- meaning, procedure and limitations. Contd.....
32	<input type="checkbox"/> Amendment of the constitution- meaning, procedure and limitations.

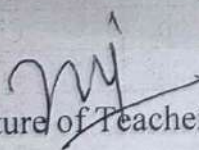
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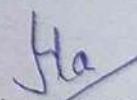
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COMPUTER ENGINEERING
Semester - VI
HS 302 (Entrepreneurship and start ups)
Subject plan for the Session Feb – May 2026

Lecture No.	Topic
	UNIT 1 - Introduction to Entrepreneurship and Start-Ups 12 Hours (12hrs.)
1	Definitions
2	Traits of an entrepreneur
3	Intrapreneurship
4	DCS
5	Motivation
6	Types of Business Structures
7	Types of Business Structures
8	DCS
9	Similarities/differences between entrepreneurs and managers
10	Similarities/differences between entrepreneurs and managers
11	Similarities/differences between entrepreneurs and managers
12	DCS
	UNIT 2 - Business Ideas and their implementation (10hrs.)
13	Business Ideas
14	implementation
15	Business Ideas and their implementation
16	DCS
17	Discovering ideas
18	visualizing the business
19	Activity map
20	DCS
21	Activity map
22	Business Plan
	UNIT 3 -Idea to Start-up (12 Hours)
23	DCS
24	Market Analysis
25	Identifying the target market
26	Identifying the target market
27	DCS
28	Competition evaluation
29	and Strategy Development
30	Competition evaluation and Strategy Development
31	DCS
32	Marketing and accounting
33	Marketing and accounting
34	Risk analysis
	UNIT 4 –Management 12 Hours
35	DCS
36	Company's Organization Structure
37	Company's Organization Structure
38	Recruitment and management of talent.
39	DCS

40	Recruitment and management of talent.	
41	Recruitment and management of talent.	
42	Financial organization and management	
43	DCS	
44	Financial organization and management	
45	Financial organization and management	
46	Financial organization and management	
	UNIT 5- Financing and Protection of Ideas	10 Hours
47	DCS	
48	Financing methods	
49	Financing methods available for start-ups in India	
50	Communication of Ideas to potential investors–Investor Pitch	
51	DCS	
52	Communication of Ideas to potential investors–Investor Pitch	
53	Communication of Ideas to potential investors–Investor Pitch	
54	Patenting and Licenses	
55	DCS	
56	Patenting and Licenses	
	UNIT 6	8 Hours
57	Exit strategies for entrepreneurs	
58	Exit strategies for entrepreneurs	
59	DCS	
60	bankruptcy	
61	bankruptcy	
62	and succession and harvesting strategy	
63	DCS	
64	and succession and harvesting strategy	


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COMPUTER ENGINEERING
Semester - IV
ITPC204 (Data base Management System)
Subject plan for the Session Feb – May 2026

Lecture No.	Topic	
	Unit-1: Introduction to Database Systems	8Hours
1	Database Systems, Database and its Purpose	
2	Comparison of Database Approach with File-based and	
3	Traditional Record Keeping approaches	
4	Dot clearing Session	
5	Advantages and Disadvantages of Database Approach	
6	Classification of Database Users, Role of DBA	
7	Role of DBA	
8	Dot clearing Session	
	Unit-2: Database System Concepts and Architecture	12 Hours
9	Data Models, Schemas, and Instances	
10	ANSI/SPARC Architecture of a Database System	
11	External Level, Conceptual Level	
12	Dot clearing Session	
13	Internal Level, Mapping	
14	Data Independence	
15	Logical Data Independence,	
16	Dot clearing Session	
17	Physical Data Independence	
18	Relational Database	
19	Model, Relations Attributes, Tuples	
20	Dot clearing Session	
	Unit 3 : Relational and E-R Models	10 Hours
21	Domains;	
22	Key - Primary Key,	
23	Candidate Keys	
24	Dot clearing Session	
25	Alternate Keys, Super key	
26	Secondary Key, Foreign Keys; Database Constraints.	
27	Entity, Entity Sets Strong and Weak Entities	
28	Dot clearing Session	
29	Association, Relationship	
30	Roles, and Structural Constraints ER Diagrams	
	Unit 4 : Database Dependencies and Normalization	10 Hours
31	Functional Dependence	
32	Dot clearing Session	
33	Functional Dependence	
34	Trivial and Non-trivial Dependencies	
35	Non-Loss Decomposition,	
36	Dot clearing Session	
37	Normalization	
38	, First, Second and Third Normal Forms	
39	First, Second and Third Normal Forms, Boyce-Codd Normal Form	

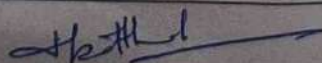
40	Dot clearing Session	
	Unit 5 : Overview of MySQL	12 Hours
41	MySQL, Features of MySQL,	
42	Database Objects - Database, Table, View, Index, Alias;	
43	MySQL Object Naming, Keywords, User-defined Variables,	
44	Dot clearing Session	
45	Data Types - Numeric, Date and Time	
46	. String Types; Operators: Arithmetic,	
47	, Logical, Relational, String	
48	Dot clearing Session	
49	MySQL System Schema, MySQL	
50	Database Users and Roles, Database Privileges, Access Control	
51	Account Management, MySQL Server and MySQL Client	
52	Dot clearing Session	
	Unit 6 : Structure Query Language using MySQL	12 Hours
53	SQL, DDL Statements : CREATE, DROP, ALTER, RENAME	
54	DML Statements: INSERT, UPDATE , DELETE	
55	SELECT; SELECT Clauses - FROM, WHERE, ORDER BY, GROUP BY, HAVING	
56	Dot clearing Session	
57	Join Operations - Inner, Left, Right and Outer Joins; Subqueries	
58	Set Operations - Union, Intersect, Minus; GRANT and REVOKE Privileges;	
59	Transaction Statements - COMMIT, ROLLBACK, SAVEPOINT;	
60	Dot clearing Session	
	Prepared Statements, SQL Functions - ABS, ROUND, FLOOR, CEIL, SQRT, POWER,	
61	TRUNCATE, LOG, NOW, DATE, TIME	
	CURDATE, CURTIME, DAY, MONTH, YEAR, DATEDIFF, DATE_SUB, DATE_ADD,	
62	DATE_FORMAT, CONCAT	
	LENGTH, UPPER, LOWER, LEFT, RIGHT, LTRIM, RTRIM, MAX, MIN, SUM, AVG, COUNT,	
63	CAST, STR_TO_DATE	
64	Dot clearing Session	

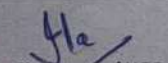
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Lecture NO	Topic NO
	Unit 1: Introduction to Satellite Communication
1	Basic Security Concepts: confidentiality, integrity, availability,
2	Basic Security Concepts: confidentiality, integrity, availability,
3	Basic Security Concepts: confidentiality, integrity, availability,
4	DCS
5	Need for satellite communication
6	Advantages of satellite communication
7	Active & Passive satellite
8	DCS
9	Orbital aspects and their effects on satellite communications.
	Unit 2: Satellite Applications
10	INTELSAT Series
11	INTELSAT Series
12	DCS
13	INSAT, VSAT
14	INSAT, VSAT
15	INSAT, VSAT
16	DCS
17	Mobile satellite services: GSM
18	GPS, INMARSAT
19	GPS, INMARSAT
20	DCS
21	LEO, MEO
22	Satellite Navigational System. GPS Position Location Principles
23	Satellite Navigational System. GPS Position Location Principles
24	DCS
25	Satellite Navigational System. GPS Position Location Principles
26	Differential GPS, Direct Broadcast satellites (DBS/DTH).

27	Differential GPS, Direct Broadcast satellites (DBS/DTH).
28	DCS
	Unit 3: Cellular Communication Concepts
29	Introduction of cellular communication
30	Formation of Cell
31	frequency reuse concept.
32	DCS
33	Channel assignment strategie
34	Handoff, Hard and Soft handoff, Handoff strategies
35	Handoff, Hard and Soft handoff, Handoff strategies
36	DCS
37	Interference, Co channel and Adjacent channel interference.
38	Estimation of cellular system capacity
39	Cellular system capacity improving techniques; Cell splitting, Sectoring, Microcell zone concept.
40	DCS
41	Cellular system capacity improving techniques; Cell splitting, Sectoring, Microcell zone concept.
42	Cellular system capacity improving techniques; Cell splitting, Sectoring, Microcell zone concept.
42	Web browser security settings: cookies, website certificates, browsing
	Unit 4: Evolution of Communication Generations:
43	2.5G TDMA evolution path, GPRS technology,
44	DCS
45	EDGE technology, 2.5G CDMA technology,
46	EDGE technology, 2.5G CDMA technology,
47	Need of 3G and 4G mobile networks,
48	DCS
49	Introduction to CDMA 2000 technology
50	Comparison between GSM and CDMA technologies
51	LTE-Advance systems,
52	DCS
53	4G & 5G Mobile techniques and Emerging technologies
54	4G & 5G Mobile techniques and Emerging technologies
55	4G & 5G Mobile techniques and Emerging technologies
56	DCS


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Computer Department 4th Semester

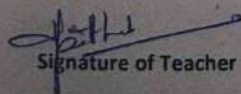
Wireless Communication Lesson plan for the Session Jan 2026 - May 2026 (COPE204-II) Programme Elective-II

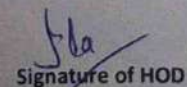
Lecture NO

Topic Name

Lecture NO	Topic Name
	Unit 1: Introduction to Wireless Communication (10 Hrs) 10 Marks
1	Wireless communication and its applications
2	Advantages and disadvantages of wireless
3	DCS
4	Types of Services : broadcast, paging,
5	Cellular telephony, trunking radio
6	DCS
7	Cordless Telephony , WLAN, Sensor Networks, Fixed wireless Access
8	Fixed wireless Access, Challenges in wireless Communication
9	DCS
10	PAN, Adhoc
	Unit-2 : Electromagnetic Spectrum (8Hrs) 10 Marks
11	Electromagnetic Spectrum, Licensed/Unlicensed Spectrum bands
12	ISM Band, Terrestrial Microwave Communication
13	DCS
14	Satellite Microwave Communication , Infrared and Light Wave Communication
15	Attenuation, Distortion, Noise and Interface
16	DCS
17	Path Loss, Shadowing
18	Fading
	Unit-3 : Fundamentals of Wireless Communication Systems (12 Hrs) 15 Marks
19	Concept of bandwidth, analog and digital signals
20	analog and digital signals, Data Rate, Signal Strength
21	DCS
22	SNR, RSSI, Electromagnetic wave Propagation
23	Ground waves, Sky waves and LOS Propagation
24	DCS

25	Radio waves, microwaves, Infrared	
26	Overview of Propagation Mechanisms: reflection	PTO
27	DCS	
28	Diffraction and scattering, Outdoor Propagation	
29	Indoor propagation	
30	DCS	
Unit-4 : Cellular Architecture		(12 Hrs) 15 Marks
31	Cellular Communication: cellular concept, cellular system architecture	
32	Cellular Communication: cellular concept, cellular system architecture	
33	DCS	
34	Cell ,clusters, Frequency reuse cell splitting, handoff,	
35	Digital Cellular System: TDMA, ETDM, PCS, CDMA,	
36	DCS	
37	Digital Cellular System: TDMA, ETDM, PCS, CDMA,	
38	Global System for Mobile Communication (GSM), GSM network: switching system, BSS, operation and support system,	
39	DCS	
40	Global System for Mobile Communication (GSM), GSM network: switching system, BSS, operation and support system,	
41	Generations of cellular networks and their features (1G – 5G).	
42	DCS	
Unit-5 : Wireless LAN Technology and Bluetooth		(6 Hrs) 10 Marks
43	Wireless LAN (WLAN), IEEE-802.11,	
44	WLAN applications, WLAN types, WLAN problems – Hidden & Exposed Station problems	
45	DCS	
46	Bluetooth technology, Direct Sequence Spectrum Scheme, Frequency Hopping Spread Spectrum	
47	Frequency Hopping Spread Spectrum and Personal Area Networks	
48	DCS	


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Department: Computer Engineering

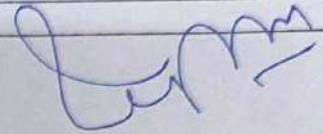
6th Semester, SL (Scripting language)

Lecture No.	Topic Name
	Unit 1: Introduction to Python
1	Features of Python; Application areas of Python; Execution modes of Python - interactive mode and script mode; Code indentation
2	Comments; Python statements - simple and compound; Python tokens - identifiers, keywords, operators,
3	DCS
4	DCS
5	DCS
6	Delimiters, and literals, Variables naming conventions
7	Need of input and output statements
8	DCS
9	DCS
10	DCS
11	Reading from standard input using the input() function
12	Writing to standard output using the print() function; Escape sequences.
	Unit 2: Data Types
13	DCS
14	DCS
15	DCS
16	Data Types: Numbers - integer, floating point and complex
17	Sequences - strings, lists and tuples; Sets; Mappings - dictionaries
18	DCS
19	DCS
20	DCS
21	Mutable and Immutable data types
22	Type conversion - Explicit and implicit conversion
23	DCS
24	DCS
	Unit 3: Operators
25	DCS
26	Arithmetic operators; Relational operators; Assignment Operators
27	Logical Operators; Bitwise operators
28	DCS
29	DCS
30	DCS

31	Identity operators and membership operators
32	Precedence and associativity of operators
33	DCS
34	DCS
35	DCS
36	Arithmetic expressions
	Unit 4: String, List, Tuple, Set and Dictionary Methods
37	Operations on sequences - concatenation, repetition
38	DCS
39	DCS
40	DCS
41	Membership testing, indexing, slicing, String methods - capitalize(), lower(), upper(), title(), count(), find(), replace()
42	List methods - count(), index(), append(), insert(), remove(), pop(), reverse(), sort(), clear();
43	DCS
44	DCS
45	DCS
46	Tuple methods - count(), index(); Set methods - add(), clear(), remove(), discard(), intersection(), difference(), union(), pop();
47	Dictionary methods - keys(), values(), items(), clear(), pop().
48	DCS
	Unit 5: Control Statements
49	DCS
50	DCS
51	Conditional statements - The if statement and its variants - if, if...else, if...elif...else; Comparison chaining
52	loop statements - while, for; use of else in loops; Jump statements - break, continue, pass
53	DCS
54	DCS
55	DCS
56	The range() function; Comprehension - list comprehension
57	Set comprehension and dictionary comprehension.
58	DCS
59	DCS
60	DCS
	Unit 6 : Modules, Packages and Exception Handling
61	Python modules and packages
62	Exception handling in Python
63	DCS
64	DCS
	Unit 7: Functions
65	DCS
66	Advantages of functions; User defined functions - function definition
67	Function call, return values; Parameter passing
68	DCS
69	DCS

70	DCS
71	Keyword and default arguments
72	Variable scope and lifetime - local and global variables
73	DCS
74	DCS
75	DCS
76	Lambda functions
	Unit 8: File Handling in Python
77	File opening modes; Python methods for reading, writing and moving within a file - read(), readline(), readlines()
78	DCS
79	write(), writelines(), truncate(), flush(), seek(), tell(); Use of with keyword
80	DCS

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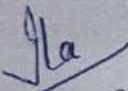


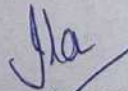
Jitender Mohan Sharma
Lecturer Computer Application
GMP Chamba

Semester - VI
ITOE304 (Multimedia Applications)
Subject plan for the Session Jan – June 2025

Lecture No.	Topic	
	UNIT 1 Introduction to Multimedia	(16hrs.)
1	Multimedia, Multimedia Elements	
2	Multimedia Hardware - GPU, Digital Camera,	
3	Scanner, Projector	
4	DCS	
5	Printer, MIDI Synthesizer	
6	Light Pen, Touch Screen	
7	Microphone, Speakers	
8	DCS	
9	Multimedia Software	
10	Raster Graphics Software	
11	Vector Graphics Editing Software	
12	DCS	
13	Audio and Video Editing Software	
14	Multimedia Authoring	
15	Video and Audio Data Compression Techniques – Lossy and Lossless	
16	DCS	
	UNIT 2 Multimedia Applications	(16hrs.)
17	Video on Demand	
18	Video Streaming, Multimedia Conferencing	
19	Interactive Television	
20	DCS	
21	Educational Applications	
22	Social Media	
23	Healthcare	
24	DCS	
25	Augmented Reality, Virtual Reality	
26	Visual Effects (VFX)	
27	Modeling	
28	DCS	
29	Simulation	
30	Marketing	
31	Business Presentations	
32	DCS	
	UNIT 3 Computer Graphics	(16hrs.)
33	Raster and Vector Graphics	
34	Basic Terminology - Coordinate System	

35	Pixel, Bitmap
36	DCS
37	Resolution, Dot Pitch
38	Color Depth, Aspect Ratio, Gamut
39	Color Models - RGB, CMYK, HSL
40	DCS
41	Aliasing, 2D Transformations – Translation, Rotation and Scaling
42	Vector Graphics Primitives
43	Shapes, Anchor Points, Bezier Curves
44	DCS
45	Combining Shapes - Union, Intersection, Exclusion and Minus
46	Stroke and Fill, Features of Adobe Illustrator
47	Features of Adobe Photoshop and Adobe Illustrator
48	DCS
	UNIT 4 Digital Audio & Video (16hrs.)
49	Characteristics of Audio
50	Frequency, Amplitude, Envelope
51	Digitization of Sound
52	DCS
53	Sampling 63 and Quantization
54	Synthetic Sound, MIDI, Digital Video
55	Basic Principles of Animation
56	DCS
57	Animation Terminology
58	Timeline Frames, Keyframes
59	Layers, Tweening
60	DCS
61	2D and 3D Animation
62	Introduction to different MPEG standards
63	MPEG-1, MPEG-2, MP3, AAC
64	DCS


Signature of Teacher


Signature of HOD/OIC