



**B.Tech. (CSE) - Cyber Security**

**II Year I Semester**

**AY 2022-2023**

**Lesson Plans**

Sl. No	Course Category	K/S/V	Dept Course	Course Code	Course	L	T	P/D	C	Max. Marks	
										CIE	SEE
1	BS	K	S&H	8HC16	Probability and Statistics	3	0	0	3	30	70
2	ES	K	ECE	8AC48	Elements of Electrical and Electronics Engineering	2	0	0	2	30	70
3	PC	K	CSE	8EC02	Object Oriented Programming through Java	2	1	0	3	30	70
4	ES	K	IT	8F303	Discrete Mathematics	2	0	0	2	30	70
5	ES	K	ECM	8DC10	Computer Organization & Architecture	2	0	0	2	30	70
6	PC	K	ECM	8D310	Software Engineering	2	0	0	2	30	70
7	HS	V	S&H	8HC17	Universal Human Values	2	1	0	3	30	70
8	PC	S	CSE	8EC62	Object oriented Programming through Java Lab	0	0	2	1	30	70
9	PC	S	CSE	8EC77	Software Engineering and Computer Organization Lab	0	0	2	1	30	70
10	ES	S	EEE & ECE	8AC77	Elements of Electrical and Electronics Engineering Lab	0	0	2	1	30	70
11	PS	K	CSE-CS	8J378	Comprehensive Test and Viva-voce - III	1	0	0	1	30	70
12	PS	S	CSE-CS	8J386	Technical Seminar - III	0	0	2	1	100	--
		<b>7/4/1</b>			<b>Total :</b>	<b>16</b>	<b>2</b>	<b>8</b>	<b>22</b>	<b>430</b>	<b>770</b>

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**Lesson Plan for Probability & Statistics (8HC16)**

S.No.	Name of Unit	No. of Periods	Topic
1	Unit I	10	Basic Definitions
2			Basic Definitions
3			Condition Probability and Problems
4			Baye's Theorem and Problems
5			Random variables – Discrete and Continuous
6			Expectation and variance
7			Problems
8			Binomial Distribution
9			Poisson Distribution
10			Normal Distribution
11	Unit II	10	Populations and samples
12			Sampling distribution of mean ( $\sigma$ known)
13			Sampling distribution of sum, differences
14			Problems on sums and differences
15			-do-
16			Central Limit Theorem and Problems
17			More Problems on Central Limit Theorem
18			-do-
19			Point Estimation and Interval Estimation concerning Means for Large Samples.
20			Problems on interval Estimation
21	Unit III	10	Basic Definitions of Test of Hypothesis
22			-do-
23			Type-I and Type-II Errors
24			Hypothesis testing concerning to one mean
25			Hypothesis testing concerning to two means
26			-do-
27			Test of Hypothesis Concerning to one Proportion
28			-do-
29			Test of Hypothesis Concerning difference of Proportions
30			-do-




31	Unit IV	10	Student t Distribution
32			Hypothesis testing concerning to one mean for small sample
33			Hypothesis testing concerning to two means for small samples
34			Problems on Hypothesis testing concerning to two means for small samples
35	Unit IV		F-Test
36			$\chi^2$ Distribution
37			Goodness of fit,
38			-do-
39			Independence of Attributes.
40			-do-
41	UNIT V	10	Measures of Central tendency: Moments, skewness and kurtosis
42			-do-
43			Types of Correlation
44			Coefficient of correlation, Properties
45			Methods of finding the coefficient of correlation
46			Karl Pearson's formula.
47			-do-
48			Spearman's rank correlation
49			-do-
50			-do-
51	UNIT VI	10	Curve Fitting - Introduction
52			Method of Least Squares
53			Fitting of a Straight line
54			Fitting of second degree polynomials
55			Fitting of General curves
56			Types of Regression,
57			Linear regression
58			-do-
59			Multiple regression
60			-do-

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### Lesson Plan for Elements Of Electrical And Electronics Engineering (8AC48)

Unit	No. of periods allocated	Periods	Topic to be covered	
Unit -I	16	1	<b>Introduction To Electrical Engineering</b>	
		2	Law, Basic circuit components	
		3	Kirchhoff's Laws	
		4	V- I relationship for passive elements	
		5	Series parallel circuits	
		6	Mesh and nodal analysis	
		7,8	Superposition Theorem & Reciprocity	
		9	<b>D.C Machines :</b> Principle of operation of D.C generators	
		10,11	Types of D.C generators	
		12	E.M.F equation and problems	
		13	Principle of operation of D.C motors	
		14	Types of D.C motors	
			15	Torque equation
			16	Losses and efficiency calculation in D.C Generators & dc motors
Unit -II	3	1,2	Analysis of ac circuits with single basic network element, peak value and rms value	
		3,4	Single phase series circuits.	
		5,6,7	Peak and form factor j operator	
		8,9	phase sequence	
		10,11	Star and delta connection	
		12	Re Relation between line and phase voltages and currents in a balanced system	

  


		13	Simple problems phase and line voltages and currents, star and delta problems
Unit-III	10	1	Faradays laws
		2	Three phase induction motor Principle of operation
		3	Construction, Types
		4	Introduction
		5	classification of instruments
		6	Operating principles
		7	Essential features of measuring instruments
		8	Permanent Magnet Moving coil (PMMC) instrument
		9	Moving Iron (MI) instruments
		10	Difference between MI and MC instrument
Unit-IV	8	1	INTRODUCTION
		2	p-n junction diode
		3,4	Characteristics and parameters
		5,6	Half wave diode rectifiers
		7,8	Full wave and bridge rectifiers
Unit -V	9	1	BJT construction, operation
		2	Characteristics (CB, CE and CC))
		3,4	<b>USES of (CB,CE,CC)</b>
		5	JFET Construction
		6,7	MOSFET
		8,9	Over view of transistors
Unit-VI	9	1	Number systems – binary codes
		2	binary arithmetic
		3	Boolean algebra, laws & theorems - of Boolean expression
		4,5	simplification of Boolean expression using K maps gates
		6	Implementation of standard forms
		7	Standard form of Boolean expressions
		8,9	
Total periods = 14+13 +10+8+ 9+9= 63			



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### Lesson Plan for Object Oriented Programming Through Java (8EC02)

SNO	TOPIC NAME	LECTURE NO
<b>UNIT I</b>		
1	History of JAVA	L1
2	Java buzzwords	L2
3	Data Types, Variables	L3
4	Creating a simple java program, compiling and running, Scope and lifetime of variables	L4
5	Operators, expressions, Control Statements	L5
6	Type conversion and casting	L6
7	Arrays, classes and objects, Concepts of classes, constructors and methods	L7,L8,L9
8	Access control, this keyword, garbage collection	L10
9	Overloading methods and constructors	L11
10	Recursion, String handling, String Tokenizer.	L12,L13
<b>UNIT II</b>		
11	Inheritance definition, single inheritance, benefits of inheritance	L14,L15
12	Member access rules	L16
13	Super classes	L17
14	Polymorphism, method overriding, Dynamic method dispatch,	L18,L19
15	Using final with inheritance, abstract classes	L20,L21
16	Base class object	L22
17	Defining an interface, implementing interface, Differences between classes and interfaces	L23,L24



18	Implements and extends keywords, An application using an interfaces and uses of interfaces	L25
<b>UNIT III</b>		
19	Defining, Creating and Accessing a Package, Types of packages	L26
20	Understanding CLASSPATH, importing packages	L27
21	Introduction to i/o programming: DataInputStream, DataOutputStream	L28,L29
22	FileInputStream, FileOutputStream, BufferedReader.	L30
23	Collections: Interfaces, Implementation classes, and Algorithms(Such as sorting and searching)	L31,32
<b>UNIT IV</b>		
24	Concepts of Exception handling, Exception hierarchy, benefits of exception handling,	L32
25	Types of exceptions, usage of try, catch, throw, throws, finally keywords	L33,L34
26	Built in Exceptions, Creating own Exception sub classes	L35
27	Concepts of multi threading, types of multi tasking, uses of multitasking	L36
28	Thread life cycle, creating multiple threads by using Thread class	L37
29	Creating multiple threads by using Runnable interface	L38
30	Synchronization, thread life cycle, daemon thread.	L39,L40
<b>UNIT V</b>		
31	Advantages of GUI over CUI, The AWT class hierarchy	L41
32	Introduction to Swings, Swing Elements: JComponent,	L42
33	JFrame,User interface components,	L43
34	JLabel, JButton, JScrollbars,text components,check box, check box groups,	L44,L45
35	choices, lists panels- scrollpane, menubar,	L46
36	Layout manager board, grid, flow, card, grid bag.	L47
37	Event handling: Delegation Event model	L48
38	Closing a frame, mouse and keyboard events	L49
39	Adapter classes.	L50,L51,L52



UNIT VI		
40	Concepts of Applets, differences between applets and, Applications	L53
41	Life cycle of an applet	L54
42	Types of applets, creating applets, passing parameters to applets	L55
43	Basics of Networking, TCP/IP Sockets, Datagram's	L56,L57
44	Simple client server program	L58
45	Multiple clients.	L59
46	sending file from server to client.	L60





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### Lesson Plan for Discrete Mathematics (8F303)

UNIT No.	Lecture No.	Topic
I	1	Introduction, Statements and connectives
	2	Truth Tables, Tautological implications
	3-6	Equivalences, Implications, Normal forms
	7	Conditional Proof
	8-10 11-12	Rules of inference, Arguments, Proof by contradiction,
II	13-14	Predicates, Quantifiers
	15	Free and Bound Variables
	16	Rules of inference, Consistency,
	17-18	Automatic Theorem Proving
III	19	Properties of Binary Relations
	20-21	Compatibility & Equivalence Relations
	22	Partial Ordering relations
	23	Hasse diagrams
	24-25	transitive closure,
	26	Lattice and its properties
	27	Algebraic systems, Examples and general properties
	28-29	Semi groups & Monoids
	30-31	Groups & Sub groups
	32	Homomorphism & Isomorphism
IV	33-35	Basics of counting, combinations & permutations
	36-38	Binomial and Multinomial theorems, Principle of inclusion - exclusion
	39	Pigeon hole principle and its applications.
V	40-42	Generating functions, Calculating coefficients of generating functions
	43-45	Recurrence relations, Solving by Substitution and Generating functions
	46-49	Characteristic roots, Solution of inhomogeneous recurrence relations
VI	50-52	Graph theory, Basic concepts,
	53	Representation of graph
	54-56	Spanning trees, DFS, BFS



	<b>57-58</b>	Planar Graphs, Matchings and coverings.
	<b>59-60</b>	Isomorphism and sub graphs
	<b>61-62</b>	Multi graphs and Euler circuits.
	<b>63-64</b>	Hamiltonian graphs
	<b>65-67</b>	Chromatic numbers, connectivity,

  


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### Lesson Plan for Computer Organization And Architecture (8DC10)

S. No.	Unit I	Cumulative classes
1	Introduction to computers & Types of computers	7
2	Functional units and their operation	
3	Computer Bus structures	
4	Operating Systems & application software	
5	Multi processors and Multi computers	
6	Fixed point Representation of data	
7	Floating point representation of data	
	<b>Unit II</b>	
1	Introduction to core languages – RTL	7
2	Automatic, logic & shift micro operations	
3	ALU	
4	Instruction codes, computer registers	
5	Computer instructions, instruction cycle, memory reference & I/o instruction	
6	Instruction & stack operations	
7	Instructions formats,	
	<b>Unit III</b>	
1	Control memory	4
2	Address sequencing	
3	Micro-program	
4	Design of control unit, Hard wired and micro programmed control unit	
	<b>Unit IV</b>	6
1	Architecture of 8086 Microprocessor	
2	8086 flag register and function of 8086 Flags.	
3	Addressing modes	
4	Instruction set of 8086.	
S. No.	<b>Unit V</b>	
1	Assembler directives	6
2	simple programs, procedures, and macros	
3	Assembly language programs	
4	logical, Branch & Call instructions, sorting	



5	evaluation of arithmetic expressions	
6	string manipulation.	
	<b>Unit VI</b>	
1	Pin diagram of 8086-Minimum mode and maximum mode of operation.	6
2	Timing diagram. Memory interfacing to 8086 (Static RAM & EPROM)	
3	8255 PPI – various modes of operation and interfacing to 8086.	
4	Interfacing Stepper Motor	
5	Interrupt structure of 8086	
6	Vector interrupt table, Interrupt service routines	



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### Lesson Plan for Universal Human Values (8HC17)

S. No	UNIT	No. of periods	TOPIC TO BE COVERED
1	I	7	<b>INTRODUCTION TO HUMAN VALUES</b>
2			Purpose and motivation for the course, recapitulation from Universal Human Values-I
3			Self-Exploration–what is it? - Its content and process; ‘Natural Acceptance’ and Experiential Validation- as the process for self-exploration
4			Continuous Happiness and Prosperity- A look at basic Human Aspirations
5			Right understanding, Relationship and Physical Facility-
6			the basic requirements for fulfillment of aspirations of every human being with their correct priority
7			Understanding Happiness and Prosperity correctly- A critical appraisal of the current scenario
8			Method to fulfill the above human aspirations: understanding and living in harmony at various levels.
9	II	7	<b>Understanding Harmony in the Human Being</b>
10			Understanding human being as a co-existence of the sentient ‘I’ and the material ‘Body’
11			Understanding the needs of Self (‘I’) and ‘Body’ - happiness and physical facility
12			Understanding the Body as an instrument of ‘I’ (I being the doer, seer and enjoyer)
13			Understanding the characteristics and activities of ‘I’ and harmony

  


			in 'I'
14			Understanding the harmony of I with the Body: Sanyam and Health; correct appraisal of Physical needs, meaning of Prosperity in detail
15			Programs to ensure Sanyam and Health. Include practice sessions to discuss the role others have played in making material goods available to me. Identifying from one's own life. Differentiate between prosperity and accumulation. Discuss program for ensuring health vs dealing with disease...
16	III	7	<b>Understanding Harmony in the Family and Society</b>
17			Understanding values in human-human relationship; meaning of Just (nine universal values in relationships) and program for its fulfillment ensure mutual happiness; Trust and Respect as the foundational values of relationship
18			Understanding the meaning of Trust; Difference between intention and competence
19			Understanding the meaning of Respect, Difference between respect and differentiation; the other salient values in relationship
20			Understanding the harmony in the society (society being an extension of family): Resolution, Prosperity, fearlessness (trust) and co-existence as comprehensive Human Goals
21			Visualizing a universal harmonious order in society- Undivided Society, Universal Order- from family to world family.
22			Include practice sessions to reflect on relationships in family, hostel and institute as extended family, real life examples, teacher-student relationship,
23			goal of education etc. Gratitude as a universal value in relationships. Discuss with scenarios. Elicit examples from students' lives
24			Pollution, Harmony in Nature
25			IV
26	Understanding Harmony in the Nature and Existence - Whole existence as Coexistence		



27			Understanding the harmony in the Nature
28			Interconnectedness and mutual fulfillment among the four orders of nature- recyclability and self-regulation in nature
29			Understanding Existence as Co-existence of mutually interacting units in all-pervasive space
30			Holistic perception of harmony at all levels of existence. pollution, depletion of resources and role of technology etc
31	V	3	<b>Implications of the above Holistic Understanding</b>
32			Natural acceptance of human values
33			Definitiveness of Ethical Human Conduct
34			Basis for Humanistic Education,
35			Humanistic Constitution and Humanistic Universal Order
36	VI	6	<b>Implications of the above Holistic Understanding</b>
37			Competence in professional ethics: a. Ability to utilize the professional competence for augmenting universal human order
38			b. Ability to identify the scope and characteristics of people-friendly and eco-friendly production systems, c. Ability to identify and develop appropriate technologies and management patterns for above production systems.
39			Case studies of typical holistic technologies, management models and production systems
40			Strategy for transition from the present state to Universal Human Order: a. At the level of individual: as socially and ecologically responsible engineers, technologists and managers
41			b. At the level of society: as mutually enriching institutions and organizations
42			28. Sum up. Include practice Exercises and Case Studies will be taken up in Practice (tutorial) Sessions eg. to discuss the conduct as an engineer or scientist etc.




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### Lesson Plan for Software Engineering (8D310)

S. No.	Topic to be covered	No. of Sessions required
1	<b>UNIT – 1 : Introduction to Software Engineering:</b> The Evolving Role of Software	1
2	Changing Nature of Software, Software Myths.	2
3	<b>A Generic View of Process:</b> Software Engineering- A layered technology	1
4	A Process framework	1
5	The Capability Maturity Model Integration (CMMI)	2
6	Process patterns, process assessment	1
7	Personal and team process models.	1
8	<b>Process Models:</b> The waterfall model, Incremental process models	2
9	Evolutionary process models, The Unified process.	2
10	<b>UNIT – 2: Software Requirements:</b> Functional and non-functional requirements	1
11	User requirements, System requirements.	1
12	Interface specification, the software requirements document.	2
13	<b>Requirements Engineering Process:</b> Feasibility studies	1
14	Requirements elicitation and analysis	1
15	Requirements validation, Requirements management.	2
16	<b>UNIT – 3: System Models:</b> Context Models	1
17	Behavioral models, Data models	1





18	Object models	2
19	Structured methods.	1
20	<b>Design Engineering:</b> Design Process and Design quality	2
21	Design concepts, the design model.	1
22	<b>Creating an Architectural design:</b> Software architecture	1
23	Data design, Architectural styles and patterns	2
24	Architectural Design.	1
25	<b>UNIT – 4: Object-Oriented Design:</b> Objects and Object classes	1
26	An Object-Oriented Design Process, Design evolution.	2
27	<b>Performing User Interface Design:</b> Golden rules	1
28	User Interface Analysis and Design	1
29	Interface Analysis, Interface design steps	2
30	Design Evaluation.	1
31	<b>Testing Strategies:</b> A strategic approach to software testing	1
32	Testing strategies for conventional software	1
33	Black Box Testing and White-Box Testing	1
34	Validation Testing, System Testing	2
35	The Art of Debugging.	1
36	<b>UNIT – 5: Product Metrics:</b> Software Quality, Metrics for Analysis Model	1
37	Metrics for Design Model, Metrics for source code	2
38	Metrics for Testing, Metrics for Maintenance.	1
39	<b>Metrics for Process and Products:</b> Software Measurement	1
40	Metrics for software quality	1
41	<b>Risk Management:</b> Reactive vs. Proactive Risk strategies	1
42	Software Risks, Risk Identification	2



43	Risk Projection	1
44	Risk Refinement, RMMM, RMMM Plan.	2
45	<b>UNIT – 6: Quality Management:</b> Quality Concepts, Software Quality Assurance	1
46	Software Reviews, Formal Technical Reviews	1
47	Statistical Software Quality Assurance	1
48	Software Reliability	1
49	The ISO 9000 Quality Standards.	1

  
