

ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

# B. Tech. Scheme of Examination & Syllabus 2023-24 COMPUTER SCIENCE & ENGINEERING (CYBER SECURITY)

# THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	Evaluation		
22CS201T	Applied Methometics	2	1		4	CA	ESE	Total
23033011	Applied Mathematics – III	3			4	30	70	100

[6Hrs]

[8Hrs]

[6Hrs]

# Analytic Number theory:

Eulid's Lemma, Euclidean algorithm, basic properties of congruences, residue classes and complete residue system, Euler Fermat theorem, Lagrange's theorem and its applications, Chienese remainder theorem, primitive roots.

# Unit II

Unit I

**Matrices:** Linear dependence of vectors, Characteristics equation, Eigen values and Eigen vectors, Reduction to diagonal form, Reduction of quadratic form to canonical form by orthogonal transformation, Sylvester's theorem.

#### Unit III

**Vector Space:** Subspaces, Linear Dependence/Independence, Basis, Dimension, Linear transformation, Range Space and Rank, Null Space and Nullity, Rank nullity theorem, Matrix Representation of a linear transformation, Linear Operators on R<sup>n</sup>

# Unit IV

**Probability**: Baye's rule, Review of discrete and continuous random variables, Joint probability function of discrete random variable, Marginal probability function and Conditional distribution of discrete random variable, Mathematical expectation of discrete random variable, Variance and Standard deviation, and Covariance of joint distribution.

# Unit V

**Statistics:** Multiple regression analysis, Regression equation of three variables, Measures of central tendency, Mean, Median, Mode, Mean deviation, Standard deviation, Testing a hypothesis, Null hypothesis, Alternative hypothesis, t-test, F-test and Chi square test.

# **Text Books**

S.N	Title	Authors	Edition	Publisher
1	Linear Algebra and Its Application (Paperback)	Gilbert Strang	2007	Nelson Engineering
2	Higher Engineering Mathematics	B.S. Grewal	40th Edition	Khanna Publication
3	Theory & problems of Probability and Statistics	Murray R. Spiegel		Schaum Series, Mc Graw Hills
Reference	ce Books			
S.N	Title	Authors	Edition	Publisher
1	Advanced Engineering Mathematics	Erwin Kreysizig	8 <sup>th</sup> Edition	Wiley India
2	Linear Algebra	Seymour Lipschutz etal	3 <sup>rd</sup> Edition	Schaum series.
3	First course in Linear Algebra	Nagpaul,	8 <sup>th</sup> Edition	Wiley Eastern Ltd, New Delhi
4	Higher Engineering Mathematics	H.K Dass & Er. Rajesh	3 <sup>rd</sup> Edition	S. Chand Publication.

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Chairman - BoS	Dean – Academics	Date of Release	Version	2024-25

#### [8Hrs]

# [7Hrs]



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# **COMPUTER SCIENCE & ENGINEERING (CYBER SECURITY)**

THIRD SEMESTER								
Course Code	Course Name	Th	Tu	Pr	Credits	E	valuation	
23CS302T	Data Structures	4	_	_	4	CA	ESE	Total
23003021	Data Off Uctures	-			-	30	70	100

Course Objectives	Course Outcomes
This course is intended	Students will be able to
<ul> <li>To provide knowledge of basic concepts in data structures and algorithms.</li> <li>To choose the appropriate data structure and algorithm design method for a specified application.</li> <li>To efficiently implement the different data structures and solutions for specific problems</li> </ul>	<ul> <li>To understand the basic concept of data structures, time complexity and analyse the various sorting and searching algorithms.</li> <li>To implement dynamic data structures like singly, doubly and circular linked list.</li> <li>Apply the different linear data structures like stack and queue to various computing problems.</li> <li>Implement different types of trees and apply them to problem solution.</li> <li>Demonstrate the representation of graphs and their applications in real life problem and infer the use of symbol tables for hashing and collision resolution.</li> </ul>

# Unit I

Introduction: - Concept of Data structures, Time and space analysis of algorithms, Big oh, theta notations and omega notations, Average, best and worst case analysis

Searching and sorting techniques- Linear search, Binary search, Indexed search, Insertion sort, selection sort, Bubble Sort, radix Sort, Merge Sort, Quick Sort.

#### Unit II

[8Hrs] Linked Lists : Singly linked list, Implementation of linked list using static and dynamic memory allocation, operations on linked list, polynomial representations and manipulations are using linked list, circular linked list, doubly linked list, Generalized list, sparse matrix, polynomial

# Unit III

#### [8Hrs]

[8Hrs]

Stack and Queue - Array representation of stacks, Implementation of stack using linked lists, Queues , Dequeue, Circular queue, Polish notation, Application of stack & queue: Conversion from Infix to Postfix, Evaluation of postfix expressions, Priority Queues [8Hrs]

# Unit IV

Trees: Basic Terminology, Basic trees, Binary tree representations, threaded storage representation, binary tree traversals, binary search trees, Application of trees, Preliminary treatment of AVL Trees, B-Trees.

# Unit V

Graphs: Definition & terminology, Graph representation: matrix representation of Graph, List of structure, other representation of graphs, Breadth First Search, Depth First Search, Spanning trees, Shortest path algorithm, topological sorting.

Symbol Tables: static tree tables, dynamic tree tables, hash tables, hash functions, Collision resolution, overflow handling, Applications

# **Text Books**

S.N	Title	Authors	Edition	Publisher
1	Fundamentals of Data Structure	Horowitz and Sahani	Ι	CBS Publications
2	Data Structures using	Tanenbaum	IV	C Pearson Education
3	Data structure and Algorithm	Lafore	II	BPB Publication
Reference	ce Books			
S.N	Titla	Authors	Edition	Dublicher
	l lue	Autions	Eution	Publisher
1	Data Structure and Program Design in	Kruse, Leung and	I	Publisher PHI
1	Data Structure and Program Design in C	Kruse, Leung and Tondo	I	Publisher
1	Data Structure and Program Design in C Schaum's outline: Data Structures	Kruse, Leung and Tondo Seymour Lipschutz	I IV	Publisher PHI Tata Mc Graw Hill

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[8Hrs]



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# B. Tech. Scheme of Examination & Syllabus 2023-24

# **COMPUTER SCIENCE & ENGINEERING (CYBER SECURITY)**

THIRD SEMESTER

Course Code	Course Name	Th	Tu	Pr	Credits	I	Evaluation	
23C8302B	Data Structures Lab	_	_		0 1	CA	ESE	Total
23003021	Data Officiales Lab		_	2	•	25	25	50

Course Objectives	Course Outcomes
This course is intended	Students will be able to
To emphasize the application of data structures in	<ul> <li>Select appropriate data structures as applied to specified problem definition.</li> </ul>
algorithm	<ul> <li>Implement linear and Non-Linear data structures.</li> <li>Implement operations like searching, insertion, deletion and traversing mechanism etc. on various data structures.</li> </ul>
	• Determine and analyze the complexityof given Algorithms.

Expt. No.	Experiments based on
1	To design and implement basic C program using arrays & structures.
2	To implement a Menu driven program for linear & Binary search methods and demonstrate their constraints.
3	To implement a Menu driven program for Sorting methods and analyze theirperformances.
4	To implement a Program to demonstrate the working of a stack.
5	To implement a Program to demonstrate the working of a Queue
6	To implement a Program to apply the concepts of linked list
7	To implement the non- linear data structure binary tree
8	To implement BFS and DFS in graph
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# **Text Books**

IEXT DOD	K5			
S.N	Title	Authors	Edition	Publisher
1	Data Structure and Program Design in C	Kruse, Leung and Tondo	IV	Tata Mc Graw Hill
2	Schaum's outline: Date Structures	Seymour Lipschutz	IV	Tata Mc Graw Hill
3	An Introduction to DS with applications	Trembley and sorenson	IV	Mc Graw Hill
		Reference Books		
S.N	Title	Authors	Edition	Publisher
1	Data Structure and Program Design in C	Kruse, Leung andTondo	III	PHI
2	Schaum's outline: Data Structures	Seymour Lipschutz	II	Tata Mc Graw Hill
3	An Introduction to DS with applications	Trembley and sorenson	Ι	Mc Graw Hill

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# B. Tech. Scheme of Examination & Syllabus 2023-24

# **Computer Science & Engineering (Cyber Security)**

	<u>THIRD</u>	SEME	<u>STER</u>						
Course code	Course Name	Th	Tu	Pr	Credits		Evalu	ation	
0000000T	Digital Circuits and Fundamentals	its and Fundamentals		4	СА	ESE	Total		
23653031	of Microprocessors	3	3 1	-	4	30	70	100	
	Course Objectives				Cours	e Outcomes	;		
This course is i	ntended	S	Students will be able to						
• To acquire application circuits.	<ul> <li>This course is intended</li> <li>To acquire the basic knowledge of digital logic levels and application of knowledge to understand digital electronics circuits</li> </ul>				numerical values and the second strate the known of the second strate the second strates and the second strates an	ues in vario owledge of: OR), Boolea	us number sy logic gates an algebra, D	vstems and (AND, OR, eMorgan's	

To impart how to design Digital Circuits.

Understand 8086 microprocessor concepts, architecture and programming.

#### analyze and design digital combinational circuits analyze and design sequential digital circuits.

Theorems, Karnaugh map.

describe the architecture& organization of 8086 microprocessor along with instruction set format list, describe and use different types of instructions,

directives & interrupts and develop assembly language program

# Unit I

Number Systems & Code Conversion:- Number Systems & Code conversion, Boolean Algebra & Logic Gates, Truth Tables, Universal Gates, Simplification of Boolean functions, SOP and POS methods -Simplification of Boolean functions using Kmaps, Signed and Unsigned Binary Numbers.

# Unit II

Combinational Circuits:- Combinational Logic Circuits: Adders & Subtractors, Multiplexers, Demultiplexers, Encoders, Decoders, Programmable Logic Devices

# Unit III

Sequential Circuits:- Sequential Logic Circuits: RS, Clocked RS, D, JK, Master Slave JK, T Flip-Flops, Shift Registers, Types of Shift Registers, Counters, Ripple Counter, Synchronous Counters, Asynchronous Counters, Up-Down Counter. [8Hrs]

# Unit IV

Fundamentals of 8086 Microprocessors: 8086 microprocessor, Functional Diagram, register organization 8086, Flag register of 8086 and its functions, Addressing modes of 8086, Pin diagram of 8086, Minimum mode & Maximum mode operation of 8086, Interrupts in 8086. Unit V

# [8Hrs]

Programming of 8086 Micro-processor:- Instruction set of 8086, Assembler directives, Procedures and Macros, Simple programs involving arithmetic, logical, branch instructions, Ascending, Descending and Block move programs, String Manipulation Instructions.

# **Text Books**

S.N	Title	Authors	Edition	Publisher
1	Digital Design	M. Morris Mano, Michael D.Ciletti	5 <sup>th</sup> Edition	Pearson Education
2	Digital Electronics: Principles, Devicesand Applications	Anil K. Maini		John Wiley & Sons, Ltd
3	Microprocessor and Microcontrollers	N. Senthil Kumar, M. Saravanan, S. Jeevanathan		Oxford Publishers
D (				

# Reference Books

S.N		Title	Authors	Editi	on	Publisher	
1	Digital Fu	undamentals –A	Thomas L. Floyd		Pearson		
	Syste	msApproach					
2	Funda	mentals of Logic Design	Charles H. Roth	5 <sup>th</sup> Edition		Cengage Learning	
3	Micropro	cessors and Interfacing.	D.V.Hall	2 <sup>nd</sup> Ec	dition	TMGH	
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Chairman - BoS Dean – Academics		Date of Release	Version	2024	1-25		

# [8Hrs]

[8Hrs]

[8Hrs]



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# **Computer Science & Engineering (Cyber Security)**

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THIRD	D SEMESTER	

Course Code 23CS303P This course is in To introduce	Course Name Digital Circuits & Fundament Microprocessor lab Course Objectives	tals of	<u>Fh Tu</u> 	Pr 2	Credits	E CA	valuation ESE	Total	
23CS303P This course is in To introduce	Digital Circuits & Fundament Microprocessor lab	tals of	-   -	2	1	CA	ESE	Total	
This course is in To introduce	Microprocessor lab Course Objectives		-   -	L 2		CA ESE Tota			
This course is in ● To introduce	Course Objectives				-	25	25	50	
This course is in ● To introduce	Course Objectives		ľ						
This course is in To introduce					Cours	e Outcomes			
<ul> <li>To introduce</li> </ul>	tended		Students will be able to						
<ul> <li>To familiariz combinationa different digit</li> <li>To introduce</li> </ul>	<ul> <li>To introduce the basic concepts and laws involved in the Boolean algebra and logic families and digital circuits.</li> <li>To familiarize with the different logic gates, and combinational and sequential circuits utilized in the different digital circuits and systems.</li> <li>To introduces basic instruction of microprocessor.</li> </ul>						Gates. al circuits processor		
Expt. No.	Experiments based on								
1	To verify the truth table of diff	ferent logic ga	ates.						
2	To study and verify the NANI	D & NOR gate	es as univ	ersal ga	tes.				
3	To study and verify truth table of Half adder and Full Adder.								
4	To study and verify truth table of Multiplexer & Demultiplxer.								
5	To study and verify truth table	e of different f	flip flops.						
6	To study and verify 4 bit rippl	le counter.							
7	Write and execute an ALP fo	r addition & S	Subtraction	of two	16 bit numb	oers.			
8	Write and execute an ALP to	find 1's com	plement of	16 bit a	a number.				
9	Write and execute an ALP fo	r sorting of da	ata in asce	nding o	rder and fin	d largest numl	ber in an arra	ıy.	
10	Mini -Project								
Text Books									
S.N	Title	Aut	thors		Editio	on	Publis	her	
1 Diç	jital Integrated Electronics	Herbe	ert Taub		1 <sup>st</sup> Edi	tion	McGrav	v Hill.	
2 Digita	Logic and Computer Design	Morri	is Mano		5 <sup>th</sup> Edi	tion	PH	11	
3 Diç	3 Digital Integrated Electronics Herbert Taub 2 <sup>nd</sup> Edition McGraw Hill.								
Reference Books		. <u> </u>				1			
S.N	Title	Διιτ	thors		Fditid	on	Publis	her	
1 Fun	damentals of Logic Design	Charle	s H. Roth		5th Fo	lition	Cendade I	earning	
2 Micro	pprocessors and Interfacing	D.\	V.Hall		2nd Ed	dition	TMG	<u></u> Н	

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Course C	Code	Co	ourse Name		Th	Tu	Pr	Credits		Evaluation	
230530	4Т	Information	Security Fundame	ontals	4	_	_	4	CA	ESE	То
200000				intais	-			-	30	70	1
		Course Obje	ectives					Cou	rse Outcom	es	
I his cours	se is inte	ended	nhy and its applie	ation to	S	student	s will	be able to	<b>D</b>		
		inals of cryptogra	priy and its applied		•	Unders	stand a	ind explain	the risks fac	ed by compute	er syst
network	securit	у.			•	Analvs	e Crvp	tographic te	chniques.		
Understand network security threats, security services, and				d	Identify	and a	analyze sec	urity probler	ns in compute	er syst	
countermeasures.						and ne	tworks	•			
• Understa	and vul	nerability analysis	s of network securi	ity.	•	Explair	how s	standard se	curity mecha	nisms work.	
					•	Unders	stand s	ecurity mec	hanisms to p	protect compute	er syst
						anune	INOIRS	•			
Unit I											[6
Security F	Fundan	nentals:									
ntroductio	on of inf	ormation Security	v, Security goals, Security goa	Security Se	rvices	s and m	echan	isms, Attacl	s, Authentic	ation, Authoriz	zation,
	eciniqu			spriers, Or		ie i au, i	DIUCK		Stream Cipi		
											8]
Unit II											
Unit II Cryptogra	aphy:	symmetric Crypto	graphic Technique		ES A	Attacks	on DE	S. Modes of	operations	Linear cryptan	alvsis
<b>Unit II</b> Cryptogra Symmetric differential	aphy: c and As I crypta	symmetric Crypto nalysis, Public ke	graphic Technique y algorithms, RSA	es : DES, A , Hash fur	ES, A	Attacks	on DE ·1, MD	S, Modes of 5	operations,	Linear cryptan	nalysis
Unit II Cryptogra Symmetric differential Unit III	aphy: c and As I crypta	symmetric Crypto nalysis, Public ke	graphic Technique y algorithms, RSA	es : DES, A , Hash fur	ES, A	Attacks s- SHA-	on DE 1, MD	S, Modes of 5	operations,	Linear cryptan	nalysis <b>[8</b>
Unit II Cryptogra Symmetric differential Unit III Key mana	aphy: c and As l crypta agemer	symmetric Crypto nalysis, Public ke I <b>t</b>	graphic Technique y algorithms, RSA	es : DES, <i>F</i> , Hash fur	NES, A	Attacks Is- SHA-	on DE: ·1, MD	S, Modes of 5	<sup>c</sup> operations,	Linear cryptan	nalysis [8
Unit II Cryptogra Symmetric differential Unit III Key mana Generatio	aphy: c and As l crypta agemer n, Distri	symmetric Crypto nalysis, Public ke It bution, updation,	graphic Technique y algorithms, RSA Digital certificate,	es : DES, <i>F</i> , Hash fur , X.509 ce	NES, Anotions	Attacks s- SHA- tes, Dig	on DES 1, MD	S, Modes of 5 natures, Dif	f operations,	Linear cryptan	nalysis [8 , One
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Unit II Cryptogra Symmetric differential Unit III Key mana Generatior authentica Unit IV Network S Security cc nternet Ke Unit V Security in Threats in	aphy: c and A: l cryptal agemer n, Distri ation, Ke Securit oncerns ey Exch n Netw networ	symmetric Crypto halysis, Public ke bution, updation, erberos. y , Introduction to IF nage protocol(IKI orks: ks, Network Secu	graphic Technique y algorithms, RSA Digital certificate, PSEC, Tunnel moc E)	es : DES, <i>A</i> , Hash fur , X.509 ce de, Transpo	Encry	Attacks s- SHA- tes, Dig ode, Intro pode, Intro	on DE: 1, MD ital sig	S, Modes of 5 natures, Dif on to handsh	foperations,	Linear cryptan key exchange, ls, Record laye	nalysis [8 , One [8 er prote [8
Unit II Cryptogra Symmetric differential Unit III Key mana Generatior authentica Unit IV Network S Security co Internet Ke Unit V Security in Chreats in Authentica	aphy: c and A: l cryptal agemer n, Distri- ation, Ke Securit oncerns ey Exch n Netw networ ation, A	symmetric Crypto nalysis, Public ke ut bution, updation, erberos. y , Introduction to IF nage protocol(IKI orks: ks, Network Secu ccess Controls, V	graphic Technique y algorithms, RSA Digital certificate, PSEC, Tunnel mod E) rity Controls – Arc Vireless Security,	es : DES, <i>A</i> , Hash fur , X.509 ce de, Transpo chitecture, Honeypot	Encry	Attacks s- SHA- tes, Dig ode, Intro vption, C affic flov	on DE: 1, MD ital sig oductio	S, Modes of 5 natures, Dif on to handsh Integrity, S rity, Firewa	fie hellman fie hellman nake protoco trong lls – Design	Linear cryptan key exchange, ls, Record laye and Types of	nalysis [8 , One [8 er prote [8
Unit II Cryptogra Symmetric differential Unit III Key mana Generatior authentica Unit IV Network S Security conternet Ke Unit V Security in Threats in Authentica Personal F	aphy: c and A: l cryptal agemer n, Distri ation, Ke Security oncerns ey Exch n Netw networ ation, A Firewall	symmetric Crypto nalysis, Public ke bution, updation, erberos. / , Introduction to IF nage protocol(IKI orks: ks, Network Secu ccess Controls, V s, IDS, Email Sec	graphic Technique y algorithms, RSA Digital certificate, PSEC, Tunnel mod E) rity Controls – Arc Vireless Security, urity – PGP,S/MIN	es : DES, <i>A</i> , Hash fur , X.509 ce de, Transpo chitecture, Honeypot	ES, Anctions	Attacks s- SHA- tes, Dig ode, Intro vption, C	on DE: 1, MD ital sig	S, Modes of 5 natures, Dif on to handsh Integrity, S rity, Firewa	fie hellman l nake protoco trong lls – Design	Linear cryptan key exchange, ls, Record laye and Types of	nalysis [8 , One [8 er prote [8
Unit II Cryptogra Symmetric differential Unit III Key mana Generatior authentica Unit IV Network S Security cc nternet Ke Unit V Security II Threats in Authentica Personal F ext Books S.N	aphy: c and As l cryptal agemer n, Distri ation, Ke Securit oncerns ey Exch n Netw networ ation, A Firewall s	symmetric Crypto halysis, Public ke bution, updation, erberos. y , Introduction to IF nage protocol(IKI orks: ks, Network Secu ccess Controls, V s, IDS, Email Sec Title	graphic Technique y algorithms, RSA Digital certificate, PSEC, Tunnel mod E) rity Controls – Arc Vireless Security, surity – PGP,S/MIN	es : DES, A , Hash fur , X.509 ce de, Transpo chitecture, Honeypot ME	Encry s, Tra	Attacks s- SHA- tes, Dig ode, Intro vption, C affic flov	on DE: 1, MD ital sig oductic	S, Modes of 5 natures, Dif on to handsh Integrity, S rity, Firewal	fie hellman fie hellman nake protoco trong lls – Design	Linear cryptan key exchange, ls, Record laye and Types of <b>Publis</b>	alysis [8 , One [8 er proto [8 Firew sher
Unit II Cryptogra Symmetric differential Unit III Key mana Generatior authentica Unit IV Network S Security cc nternet Ke Jnit V Security in Threats in Authentica Personal F ext Books S.N 1	aphy: c and As l cryptal agemer n, Distri ation, Ke Security oncerns ey Exch networ ation, A Firewall s App	symmetric Crypto halysis, Public ke bution, updation, erberos. y , Introduction to IF nage protocol(IKI orks: ks, Network Secu ccess Controls, V s, IDS, Email Secu <u>Title</u> lied Cryptography	graphic Technique y algorithms, RSA Digital certificate, PSEC, Tunnel moc E) rity Controls – Arc Vireless Security, urity – PGP,S/MIN	es : DES, <i>A</i> , Hash fur , X.509 ce de, Transpo chitecture, Honeypot ME <b>A</b> Bruic	Encry s, Tra	Attacks s- SHA- tes, Dig ode, Intro vption, C affic flow	on DE: 1, MD ital sig oductio	S, Modes of 5 natures, Dif on to handsh integrity, S rity, Firewal Edition II Edit	fie hellman fie hellman nake protoco trong lls – Design on	Linear cryptan key exchange, ls, Record laye and Types of <u>Publis</u> Wiley India	inalysis [8] , One [8] er proto [8] Firew [8] sher a Pvt li
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Chairman - BoS	Dean – Academics	Date of Release	Version	2024-25



ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR (An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University) B. Tech. Scheme of Examination & Syllabus 2023-24

# **COMPUTER SCIENCE & ENGINEERING (CYBER SECURITY)**

# THIRD SEMESTER

			<u></u>		<u> </u>						
Cours	e Code	Course Name		Th	Tu	Pr	Credits		Evalua	ation	
2359	S301T	Value Education Course	-I	2	_	_	2	CA	E	SE	Total
2320	55011	Value Education Course	- I	2	_	_	2	15		35	50
<b></b> .		Course Objectives			<u>.</u>		Co	urse Outcor	nes		
This	course is	Intended			Studer	nts will	be able to	D			
To develop a holistic perspective through self-exploration and development of clarity about harmony between self, family society and nature.				nd ly, •	Demo & natu Under Devel Discus nature	nstrate ural acc rstand op clar ss cone e/existe	e awarenes ceptance. concepts c ity of harm cepts of co ence and re	es about con of aspirations ony and heat onservation co e-usability.	cepts like and Hap alth in hur of nature	e self-ex opiness man bei and har	<ploration .="" in<="" ing.="" mony="" th=""></ploration>
Unit I :	Introduct	ion to Self-Exploration									[6Hrs]
<ul> <li>Pur</li> </ul>	rpose & m	otivation for studying universal hun	nan values						I		
<ul> <li>Self</li> </ul>	f-Explorati	on-what is it? - Its content and pro	ocess.								
● 'Na	tural Acce	ptance' and Experiential Validation	n- as the pr	ocess	for self	-explor	ation.				
Unit II:	Understa	inding Happiness and Prosperity	y								[6Hrs]
<ul> <li>Und</li> </ul>	derstandin	g Happiness and Prosperity correc	ctly.						ľ		
<ul> <li>Cor</li> </ul>	ntinuous H	lappiness and Prosperity- A look a	t basic Hur	nan As	piratio	ns.					
<ul> <li>Rig</li> </ul>	ht underst	anding, Relationship and Physical	Facility.								
<ul> <li>Met</li> </ul>	thod to ful	fill the above human aspirations: u	nderstandir	ng and	living i	n harm	nony at var	ious levels.			
Unit III:	: Understa	anding Harmony in human being	J								[6Hrs]
<ul> <li>Und</li> </ul>	derstandin	g human being as a co-existence of	of the senti	ent 'l' a	and the	mater	ial 'Body'.				
<ul> <li>Uno</li> </ul>	derstandin	g the needs of Self ('l') and 'Body'	- happines	s and p	physica	al facilit	y.				
• Uno	derstandin	g the Body as an instrument of 'l' (	I being the	doer, s	seer ar	nd enjo	yer).				
• Uno	derstandin	g the characteristics and activities	of 'l' and h	armon	y in 'l'.						
<ul> <li>Unc</li> </ul>	derstandin	g the harmony of I with the Body: \$	Sanyam an	id Heal	th.						
Unit IV	: Co-exist	ing with nature									[6Hrs]
<ul> <li>Und</li> </ul>	derstandin	g the harmony in Nature.									
<ul> <li>Interview</li> </ul>	erconnecti	on and mutual fulfillment among the	e four orde	rs of na	ature- ı	recycla	bility and s	elf-regulatio	n in natu	re.	
<ul> <li>Unc</li> </ul>	derstandin	g Existence as Coexistence of mu	tually intera	acting u	units in	all-per	vasive spa	ace.			
Hol	listic perce	ption of harmony at all levels of ex	istence.								
Pol	lution, dep	pletion of resources and role of tech	nnology.								
Text Boo	oks										
S.N		Title	A	Authors	s		Edition		Publis	sher	
1	Human	Values and Professional Ethics	Gaur, Sa	ingal, E	Bagaria	ı 20	010	Excel Bool	ks, New I	Delhi	

# Reference Books

Relefel	ICE DOOKS			
S.N	Title	Authors	Edition	Publisher
1	Jeevan Vidya: Ek Parichaya	A. Nagaraj	1999	Jeevan Vidya Prakashan, Amarkantak
2	Human Values	A.N. Tripathi	2004	New Age Intl. Publishers, New Delhi
3	The Story of My Experiments with Truth	M.K.Gandhi	2009	Fingerprint! Publishers
Online	Resources			
1	https://fdp-si.aicte-india.org/UHV-II%20Class%	%20Note.php		
2	https://fdp-si.aicte-india.org/UHV-II_Lectures_	PPTs.php		

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Chairman - BoS	Dean – Academics	Date of Release	Version	2024-25



Chairman - BoS

Dean – Academics

# **ST. VINCENT PALLOTTI COLLEGE OF ENGINEERING & TECHNOLOGY, NAGPUR**

(An autonomous institution affiliated to Rashtrasant Tukadoji Maharaj Nagpur University)

B. Tech. Scheme of Examination & Syllabus 2023-24

# **COMPUTER SCIENCE & ENGINEERING (CYBER SECURITY)**

		<u>THI</u>	IRD S	EMES	<u>rer</u>				
Course Code	Course Name		Th	Tu	Pr	Credits	Evaluation		
23CS331M (i)	MDM-I Fundamentals of Network		2			2	СА	ESE	Total
	Security		2	-	-	2	15	35	50
		•				Ĩ			•
	Course Objectives					Cou	rse Outcome	s	
This course is in		St	Students will be able to						
<ul> <li>Learn fundame</li> </ul>	curity.	•	• Understand the network security services mechanism and						
Understand n	services, and		methodology.						
countermeasu	ITES.		•	Identi	fy and	d design th	ne various t	ypes of ne	etwork
- Understand u	12:41		architecture.						
	unty.	•	<ul> <li>Identify and analyze the working of firewall and IDS</li> </ul>						
			•	Under	stand t	he protocols	involved in n	etwork secu	rity.
			•	Under	stand v	arious types	s of virus and	trusted syste	ems.
									1011
Jnit I Security Funda	mentals								[6Hrs
Introduction of S	Security, Security methodology, Th	e three D's c	of Sec	curity.	Five st	teps to bette	er security, N	etwork secul	rity model.
Security goals, S	Security Services and mechanisms,	, Challenges	to Ne	etwork	Securit	y, Attacks,	, <b></b>		· <b>J</b>
Unit II									[4Hrs]
Network Archite	ecture Fundamentals:								
Network Segme	nts & Types, Perimeter Defense, N	Network Add	ress 7	Fransla	tion, B	asic Archite	ecture Issues,	Subnetting,	Switching,
and VLANs, Ad	dress Resolution Protocol and Med	dia Access co	ontrol	l,					
Unit III									[6Hrs
Addressing and	I Firewall:			<b>—</b> :				Destant	. <b>T</b>
P addressing, C	Jasses, Rules for assigning Host I	D and Netwo	Intruti	, Firev	/all: Ne	Metiods an	all, Firewalls - d modes of I	– Design and אר	d Types of
Unit IV	lar newalis, ibo, rypes of ibo, it	63001363 011	Intrat		lection	. Megous an			[4Hrs]
Network Securi	ty								
Security concern	s, Introduction to IPSEC, Tunnel mo	ode, Transpoi	rt moo	de, Intr	oductio	on to handsh	ake protocols	s, Record lay	er protocol,
Internet Key Exc	nnage protocol(IKE)								
Unit V									[4Hrs]
Socurity in Note	vorks:								[4110]
Trusted System.	Viruses and related Threats, Taxar	nomy of malag	cious	progra	ims. Na	ature of Virus	s. Types of Vi	rus. Advance	ed Antivirus
techniques.			0.000	p.09.0			, . , p = = = =		
Text Books		•							
S.N	Title	Aut	thors	ors E		Editio	n	Publisher Wiley India Pvt Itd	
1 App	lied Cryptography- Protocols,	Bruice	Schn	neier	eier II Editi		on		
Algorithms and source code in "c"		Bernard M		7000		L Editic	n n	Cengage Learning	
Reference Books		Demarc	Demarci Menzees					I Cenyaye Leanning	
S.N	Title	Authors		6	Edition		n	Publisher	
1 Cryp	1 Cryptography and Network Security		Wiiliam Stal		talling -		Pearson edition		
	Principal and Practice								
2   Cryptography and Network Security		Berouz	Berouz Forouzan					Tata Mc Graw Hill	
h									1
Anton	workpande	Julv	202	4		1.3	Applicab	le for	
1							2024-	25	

Date of Release

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