Department of Computer Science & Engineering

(Cyber Security)

Semester:- 4th Semester

Second Year Syllabus

NEP-2020

Course Code	Name of Course	Course Category	Teaching Scheme				Credits	Evaluation Scheme					
								Theory			Practical		Total Marks
			L	T	P	Total Hours		TAE	CAE	ESE	INT	EXT	
SEMESTER-IV													
23BTCSL202CY	Database Management Systems	PCC4	3			3	4	10	15	50	-	-	75
23BTCSP202CY	Database Management Systems	PCC4			2	2		-	-	-	25	25	50
23BTCYL204	Computer Architecture and Operating System	PCC5	4			4	4	10	15	50			75
UNXXXX	Multi-Disciplinary	MD2	2			2	2	10	15	50			75
UNISL2XX	Open elective -II	OE2	2			2	2	10	15	50			75
UNXXXX	Skill Enhancement Course -III:	VSEC3	1	-	2	3	2	10	15		25	-	50
UNHUL202	Aptitude & Employability Skills :2	AEC2	1	-	2	3	2	10	15		25	-	50
UNHUL203	EDP	EEMC2	2	-		2	2	10	15	50		-	75
UNHUL303	Universal Human Values 2: Understanding Harmony	VEC2	2			2	2	10	15	50			75
TOTAL			**17**	**0**	**6**	**23**	**20**	**80**	**120**	**300**	**75**	**25**	**600**

MD2:- Cyber Crimes and Investigation: **23BTCYL205**

Open Elective:- OE-II : Web Security :- **23BTCYL206**

VSEC3 :-Skill Enhancement Course -III:

Principles of Object Oriented Programming- VSEC3- 23BTCYL207 / 23BTCYP207

Security in IoT –VSEC3: 23BTCYL208 / 23BTCYP208

Course Title: **DATABASE MANAGEMENT SYSTEM**										
Semester	IV	Teaching Scheme				Evaluation cheme				
						Theory			Practical	
Term	EVEN	Th	Tu	Pr	Credits	TAE	CAE	ESE	INT	EXT
Course Category	PCC5	2 Hrs.	1 Hr.	2	4	10	15	50	25	25
Course Code	23BTCSL204 CY									
Teaching Mode	Offline	3 Hrs			Total	75			50	
Duration of ESE	2 Hrs					125				

Course Objectives	This course introduces general idea of database management system, also gives idea to design databases using data modeling and design techniques.
	It is also aimed to developing skills to implement real life applications which involve database handling.
	This course also provide carrier opportunities in subject areas of designing, storage techniques and data handling and managing techniques
Course Outcomes	**CO1**: Analyze an information storage problem and derived an information model expression in the form of Entity relation diagramand design appropriate data model for it.
	CO2: Demonstrate SQL queries to perform CRUD (Create, Retrieve, Update, Delete) operations on database and perform inferential analysis of data model
	CO3: Identify features of database management systems and Relational database and Understand functional dependencies and various normalization forms
	CO4: Perform basic transaction processing and m nagement and ensure database security, integrity and concurrency control
	CO5: Analyze the management of structured and unstructured data management with recent tools and technologies

Mapping of Course Outcomes with Program Outcomes and Program Specific Outcomes:

Course Outcomes	Program Outcomes and Program Specific Outcomes													
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	--	--	3	--	3	--	--	--	--	--	--	--	2	--
CO2	--	--	3	3	--	--	--	--	--	--	--	--	3	--
CO3	--	2	3	--	--	--	--	--	--	--	--	--	--	3
CO4	--	--	3	2	--	--	--	--	--	--	--	--	2	--
CO5	--	--	2	--	3	--	--	--	--	--	--	--	2	--

Unit	Contents	Hours
I	Introduction to DBMS - DBMS Architecture, Data Models, E-R Diagram,Relational Database design:	6

II	SQL Concepts - Basics of SQL, DDL, DML, DCL, structure – creation, alteration, defining constraints, Functions - aggregate functions, Built-in functions -numeric, date, string functions, set operations, sub-queries, correlated sub-queries, Use of group by, having, order by, join and its types, Exist, Any, All , view and its types.	8
III	Functional Dependency (FD) – Basic concepts, closure of set of FD, closure of attribute set, Decomposition, Normalization – 1NF, 2NF, 3NF, BCNF, 4NF	5
IV	Transaction control commands – Commit, Rollback, Save point. Transaction Management: Transaction concepts, properties of transactions, serializability of transactions, Two- Phase Commit protocol, Deadlock, two-phase locking protocol. Cursors, Stored Procedures, Stored Function, Database Trigger, Database recovery.	7
V	Indexing and hashing, Query processing, Query Optimization, Data Mining, Advances in databases	4

Text Books	1.	Abraham Silberschatz, Henry F. Korth and S. Sudarshan, Database System Concepts 4th Ed, McGraw Hill, 2002.
	2.	Jeff Ullman, and Jennifer Widom, A First Course in Database systems, 2nd Ed.
E-Books	1.	https://ebooks.lpude.in/computer_application/mca/term_1/DCAP204_MANAG ING_DATABASE_DCAP402_DATABASE_MANAGEMENT_SYSTEMS.pdf
Reference Books	1.	G. K. Gupta :"Database Management Systems", McGraw – Hill.
	2.	Regina Obe, Leo Hsu, PostgreSQL: Up and Running, 3rd Ed, O'Reilly Media 2017.
	3.	Kristina Chodorow, Shannon Bradshaw, MongoDB: The Definitive Guide, 3rd Ed, O'Reilly Media 2018.
	4.	RamezElmasri and ShamkantNavathe, Fundamentals of Database Systems 2nd Ed, Benjamin Cummings, 1994.
onlineTL Material	1.	https://nptel.ac.in/courses/106/105/106105175/

Course Title: Computer Architecture and Operating System_NEP										
Semester	IV	Teaching Scheme				Evaluation Scheme				
						Theory			Practical	
Term	EVEN	Th	Tu	Pr	Credits	TAE	CAE	ESE	INT	EXT
Course Category	Core	4	-	--	4	10	15	50	--	--
Course Code										
Teaching Mode	Offline	4			Total	75			-	
Duration of ESE	2 Hrs.					75				

Course Objectives	To provide essential understanding of different subsystems of modern computer system and design aspects these subsystems3
	Introduces general idea, structure and functions of operating system
	Making students aware of basic mechanisms used to handle processes, memory, Storage devices and files.
Course Outcomes	Upon successful completion of this course, student will be able to:
	CO1: Understand the basic components and design of a computer system
	CO2: Understand the concept of various memories and Pipelining technologies.
	CO3: Identify basic structure and purpose of operating system.
	CO4: Interpret the concepts of process, CPU scheduling algorithms and inter process communication.
	CO5: Schematize Deadlock, security mechanisms and different memory management techniques.

Mapping of Course Outcomes with Program Outcomes and Program Specific Outcomes:

Course Outcomes	Program Outcomes and Program Specific Outcomes														
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO2	PSO3
CO1	1	2	3	--	--	--	--	--	--	--	--	--	-	-	1
CO2	--	2	3	--	--	--	--	--	--	--	--	--	2	2	1
CO3	--	3	3	--	--	--	--	--	--	--	--	--	2	--	-
CO4	--	3	2	--	--	--	--	--	--	--	--	--	3	3	1
CO5	--	3	2	--	--	--	--	--	--	--	--	--	--	3	-

Course Contents:

Unit	Contents	Hours
I	**Basic functional blocks of Computer:** Overview and history of computer architecture **Memory Architecture:** Memory hierarchy, Memory Chip Organization, Cache memory, Virtual memory, Parallel Bus Architectures,	8

	Internal Communication Methodologies, Serial Bus Architectures, Mass storage, Input and Output Devices, Segmentation, TLB, Page replacement algorithms, DMA	
II	**Pipelining:** Basic concepts of pipelining, Arithmetic and Instruction Pipeline, throughput and speedup, pipeline hazards, Introduction, Logic Design Conventions, Building a Datapath- Pipelined Datapath and Control. Data Hazards: Forwarding versus Stalling, Control Hazards, Exceptions, Parallelism via Instructions, Software interrupt and exceptions.	8
III	**Operating System:** Evolution of OS, Types of OS, services provided by OS **Process & Its Scheduling :** Process concept, process control block, Types of scheduler, context switch, threads, multithreading model, goals of scheduling and different scheduling algorithms,	6
IV	**Process management and synchronization:** Concurrency conditions, Critical section problem, software and hardware solution, semaphores, conditional critical regions and monitors, classical inter process communication problems	6
V	**Deadlock**: definitions, Prevention, Avoidance, detection and Recovery, Goals of Protection, access matrix, Deadlock implementation **Memory Management & File systems:** File concept, Access methods space allocation strategies, disk arm scheduling strategies. Contiguous allocation, Relocation, Paging, Segmentation, Segmentation with paging, demand paging, Virtual Memory Concepts, page faults and instruction restart , page replacement algorithms	8

Text Books	1	Computer Organization and Architecture by Carl Hamacher 4th Edition
	2	Advance computer Architecture by Kai Hwang under Tata McGraw Hill publications
	3	Introduction to Parallel Processing: Algorithms &Architectures, BehroozParhami in Springer Shop
	4	Operating System concepts – Silberchatz; Galvin, Addison Wesley, 6 thEdn.
	5	Operating Systems: Internals and Design Principles -- William Stallings
Reference Books	1	Introduction to Parallel Processing by P. Ravi Prakash, M. Sasikumar, Dinesh Shikhare By PHI Publications
	2	Fundamentals of Parallel Processing by Jordan Harry, Alaghband Gita, PHI
	3	Operating Systems – S R Sathe, Macmillan Publishers, India, 2008
	4	Operating System –Milan Milenkovik, McGraw-Hill, 1987
	5	Operating Systems - 3 rd Edition by Gary Nutt, Pearson Education.
on line TL Material	1	NPTL https://nptel.ac.in/courses/106/105/106105163/
	2	https://nptel.ac.in/courses/106/108/106108101/

OE-II:- Web Security

Course Title: **Web Security-OE-II-NEP-2020**			
			Evaluation Scheme

Semester	VI	Teaching Scheme				Theory			Practical	
Term	ODD	Th	Tu	Pr	Credits	TAE	CAE	ESE	INT	EXT
Course Category	BS	2		--	2	10	15	50	--	--
Course Code	23BTCYL206									
Teaching Mode	Offline	2			Total	75			--	
Duration of ESE	3 hrs					75				

Course Objectives	To reveal the underlying in web application.
	To identify and aid in fixing any security vulnerabilities during the web development process.
	To understand the security principles in developing a reliable web application.
Course Outcomes	**CO1:** Identify the vulnerabilities in the web applications.
	CO2: Identify the various types of threats and mitigation measures of web applications.
	CO3: Apply the security principles in developing a reliable web application.
	CO4: Use industry standard tools for web application security.
	CO5: Apply penetration testing to improve the security of web applications.

Mapping of Course Outcomes with Program Outcomes

	PO 1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1 2	PSO1	PSO 2	PSO 3
CO1	**3**	**3**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**2**	**3**	**2**	**1**
CO2	**3**	**3**	**2**	**2**	**2**	**2**	**1**	**1**	**1**	**1**	**1**	**2**	**2**	**3**	**2**
CO3	**3**	**2**	**2**	**3**	**3**	**2**	**2**	**2**	**2**	**1**	**1**	**2**	**2**	**2**	**2**
CO4	**3**	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	**2**	**3**	**3**	**2**
CO5	**3**	**3**	**3**	**2**	**2**	**2**	**2**	**2**	**1**	**2**	**3**	**3**	**2**	**2**	**2**

Unit	Content	Hours
1	Introduction history of web applications interface ad structure benefits and drawbacks of web applications, Web application Vs Cloud application Security Fundamentals: Input Validation - Attack Surface Reduction, Rules of Thumb-Classifying and Prioritizing Threads.	4
2	Understanding vulnerabilities in traditional client server application and web applications, client state manipulation, cookie based attacks, SQL injection, cross domain attack (XSS/XSRF/XSSI) http header injection, Proper encryption use in web application, Session vulnerabilities and testing, Cross-site request forgery. Case studies: Cookie Based Attacks, SQL Injection	5
3	Http request , http response, rendering and events , html image tags, image tag security, issue, java script on error , JavaScript timing, port scanning , remote scripting , running remote code, frame and iframe , domain relaxation. Case Studies: HTTP Request/Response, IFrame and Frame/ Click Jacking	4
4	Secure website design : Architecture and Design Issues for Web Applications, Deployment Considerations Input Validation, Authentication, Authorization, Configuration Management , Sensitive Data, Session Management, Cryptography, Parameter Manipulation, Exception Management, Auditing and Logging, Design Guidelines, Forms and validity, Technical implementation Case Stuty: Web Architechure	4
5	Clickjacking - Java applet security - Single-sign-on solution and security, DNS rebinding - Flash security, IPv6 impact on web security	3

Reference Books:

1.	Web Application Security: Exploitation and Countermeasures for Modern Web Applications Paperback – Import, 13 March 2020 by Andrew Hoffman (Author)

Text Books:

1.	Sullivan, Bryan, and Vincent Liu. Web Application Security, A Beginner's Guide. McGraw Hill Profe ssional, 2011.
	2. Stuttard, Dafydd, and Marcus Pinto. The Web Application Hacker's Handbook: Finding and Exploiting Security Flaws. John Wiley Sons, 2011

E-Books:

1.	https://www.scribd.com/book/470612770/Penetration-Testing

VSEC3: **Principles of Object Oriented Programming-NEP-2020**

Course Title: **Principles of Object Oriented Programming-NEP-2020**										
Semester	IV	Teaching Scheme				Evaluation Scheme				
						Theory			Practical	
Term	Even	Th	Tu	Pr	Credits	TAE	CAE	ESE	INT	EXT
Course Category	VSEC3	1	--	2	2	10	15	--	25	--
Course Code	23BTCYL207 23BTCYP207									
Teaching Mode	Offline	3 Hrs			Total	**25**			**25**	
Duration of ESE	NA					**50**				

Course Objectives	To introduce & understand the concepts of Object Oriented Programming.
	It is also aimed at developing skills to implement these concepts.
Course Outcomes	Upon successful completion of this course, students will be able to:
	CO1: Articulate the principles Object Oriented Programming concepts using the C++
	CO2: Applying various Datatypes and operators in program design.
	CO3: Able to Understand and Apply the concepts of Classes and objects in program
	CO4: Understanding the principles of data abstraction and Inheritance
	CO5: Analyse the various concept of OOP in a Java

Mapping of Course Outcomes with Program Outcomes & PSOs:

Course Outcomes	Program Outcomes														
	PO 1	PO2	PO 3	PO4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO2	PSO 3
CO1		3										3	2		
CO2			3									2	3		
CO3			2	3								2	3		
CO4				2								2	2		
CO5				3								2	2		

Unit	Contents	Hours

I	**Introduction to Object Oriented Programming:** C++ overview. Basic C++ syntax, OOP Paradigm, Basic Concepts of OOP, Benefits of OOP, Application of OOP.	2
II	**Tokens, Expression and controls Structures:** Data types, C++ tokens, Identifiers, Variables, Constants, Dynamic initialization of variables, Reference variables, expressions and Control Structures & loops	3
III	**Classes and Objects**: Introduction of Classes, Class Definition, Defining a Members, Objects, Access Control, Class Scope, Scope Resolution Operator, Inline functions, Memory Allocation for Objects, Arrays of Objects, Objects as Functions Arguments, Introduction to Constructors and Destructors.	4
IV	**Inheritance:** Single Inheritance, Multiple, Multilevel, Hierarchical Inheritance, Hybrid Inheritance, Friend Function, **Polymorphism:** Function overloading & operator overloading, virtual Function,	3
V	Introduction to Java Introduce the Java concept, Java Basics, Control Flow Statements, Object-Oriented Programming (OOP) Concepts	2

List of Experiments:

Sr. No.	Name of Experiments
1	Write a program to check whether the entered year is a leap year or not (a year is leap if it is divisible by 4 and divisible by 100 or 400.)
2	Write a program to find the largest of three numbers using ternary operators
3	Write a program to generate the Fibonacci series using Function.
4	Write a program to implement the concept of call by value & call by reference.
5	Write a Program in C++ to create a Number class. The class should contain a function to Increment and Decrement the number.
6	Write a program to implement the concept of Constructors.
7	Write a program to implement the Friend function
8	Write a program to create multilevel inheritance.
9	Write a Object oriented C++ Program to implement Virtual Function.
10	Write a program to implement the concept of Java programming

Text Books	1.	Object Oriented Programming in C++ -Robert Lafore, edition, Galgotia publications
	2.	The Complete Reference C++, Herbert Schildt, 4th Edition, TMH
	3	Programming with Java A Primer, E. Balaguruswamy Tata McGraw Hill Companies.
E-Books	1.	https://faculty.ksu.edu.sa/sites/default/files/ObjectOrientedProgramminginC4thEdition.pdf
	2.	https://faculty.ksu.edu.sa/sites/default/files/ObjectOrientedProgramminginC4thEdition.pdf
Reference Books	1.	Object oriented programming with C++, E Balagurusamy, 4th edition, TMH
	2.	Let's C++ by Y. Kanetkar, BPB publications
	3.	Robert Lafore - Object Oriented Programming in Microsoft C++ - Galgotia.

SEC-3_ Security in IoT_NEP-2020

Course Title: Security in IoT_NEP-2020										
Semester	IV	Teaching Scheme				Evaluation Scheme				
						Theory			Practical	
Term	Even	Th	Tu	Pr	Credits	TAE	CAE	ESE	INT	EXT
Course Category	SEC-III	1	-	2	2	10	15	-	25	-
Course Code	23BTCYL208 23BTCYP208									
Teaching Mode	Offline	3 Hrs			Total	25			25	
Duration of ESE	NA					50				

Course Objectives	1. To learn about the security issues in IoT and cloud computing.
	2. To learn about the cryptography solutions and issues in IoT.
	3. To learn about the security measures taken in IoT and Cloud systems to improve security.
Course Outcomes	Up on successful completion of this course, student will be able to:
	CO1 - Understand the fundamental security issues in Internet of things.
	CO2 - Demonstrate different Frameworks and Hardware Architecture of IoT Device.
	CO3 - Analyze different IoT Protocols and Layer Functioning.
	CO4 - Protect and secure the network connecting IoT devices to back-end systems on the internet
	CO5 - Demonstrate different authentication mechanism such as digital certificates, biometrics, etc

Mapping of Course Outcomes with Program Outcomes and Program Specific Outcomes:

Course Outcomes	**Program Outcomes and Program Specific Outcomes**														
	PO1	**PO2**	**PO3**	**PO4**	**PO5**	**PO6**	**PO7**	**PO8**	**PO9**	**PO10**	**PO11**	**PO12**	**PSO 1**	**PSO2**	**PSO3**
CO1					3			3				3	3		
CO2					3			3				3	3		
CO3					3			3				3	3		
CO4					3			3				3	3		
CO5					3			3				3	3		

Course Contents:

Unit	Contents	Hours
I	**INTRODUCTION: SECURING THE INTERNET OF THINGS** Security Requirements in IoT Architecture, Security in Enabling Technologies, Security Concerns in IoT Applications. Insecure Access Control, Threats to Access Control, Privacy, and Availability, Attacks Specific to IoT. Vulnerabilities, Secrecy and Secret, Key Capacity.	4
II	**CRYPTOGRAPHIC FUNDAMENTALS FOR IOT** Cryptographic primitives and its role in IoT, Encryption and Decryption, Hashes, Digital Signatures, Random number generation, Cipher suites, Key management fundamentals, Cryptographic controls built into IoT messaging and communication protocols, IoT Node Authentication	4
III	**IDENTITY & ACCESS MANAGEMENT SOLUTIONS FOR IOT** Identity life-cycle, Authentication credentials, IoT IAM infrastructure, Authorization with Publish/Subscribe schemes, Access control	3
IV	**PRIVACY PRESERVATION FOR IOT** Privacy Preservation Data Dissemination, Privacy Preservation for IoT Used in Smart Building, Exploiting Mobility Social Features for Location Privacy Enhancement in Internet of Vehicles, Lightweight and Robust Schemes for Privacy Protection in Key Personal IoT Applications: Mobile WBSN and Participatory Sensing.	4
V	**CLOUD SECURITY FOR IOT** Cloud services and IoT, Offerings related to IoT from cloud service providers, Cloud IoT security controls, An enterprise IoT cloud security architecture, New directions in cloud enabled IoT computing	3

Books

Text Books	1.	David Etter, " IoT Security: Practical guide book " Create Space, 1st Edition, 2016.
	2	FeiHU, "Security and Privacy in Internet of Things (IoTs): Models, Algorithms, and Implementations", CRC Press, 2016
Reference Books	1.	Ollie Whitehouse, "Security of Things: An Implementers' Guide to Cyber-Security forInternet of Things Devices and Beyond", NCC Group, 2014
	2.	Drew Van Duren, Brian Russell, "Practical Internet of Things Security", Packt, 1st Edition, 2016.

Humanities Courses as per Scheme-2023

(NEP-2020)

Course Title: Aptitude and Employability Skills										
Semester	**IV**	**Teaching Scheme**				**Evaluation Scheme**				
						Theory			Practical	
Term	II	L	Tu	Pr	Credits	TAE	CAE	ESE	INT	EXT
Course Category	AEC2	1	-	2	3	10	15	-	25	--
Course Code	**23BTSHL231** AI/CS/CY/DS/IT/EC/ EE/ME/CE **23BTSHP231** AI/CS/CY/DS/IT/EC/ EE/ME/CE									
Teaching Mode	Offline				**Total**	25			25	
Duration of ESE	NA					**50**				

Course Objectives	The Curriculum aims to equip students in order to apply quantitative reasoning and Mathematical analysis methodologies to understand and solve problems.
	To attain conceptual clarity to comprehend reasoning questions in a simple way and arrive at decisions at a logical manner.
	To introduce them with the current market scenarios and equip the students with the essential skills for employability
	To demonstrate self-sufficiency to be highly employable and assimilate how to prepare for personal interview
	To build self confidence facing any interview and consolidate job and career readiness
Course Outcomes	**CO1:** Students shall draw conclusions or make decisions based on analysis and critique of quantitative information. This leads them to effectively justify the conclusion and execute their plans.
	CO2: Students shall solve real life problems requiring interpretation and comparison of various probabilities to ascertain the best outcomes expected.
	CO3: Students shall exhibit their ability to set clear and realistic professional objective and enabling them to make well informed choices and commercially equipped according to market trends (Resume Building)
	CO4: Students shall be equipped on the application of organizing, planning and execution Skills(Personal Interview)
	CO5: Students shall be well versed to map their personality tied with different job opportunities. (Market Research & Identifying skill gap)

Mapping of Course Outcomes with Program Outcomes and Program Specific Outcomes:

Course Outcomes	Program Outcomes and Program Specific Outcomes														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO 10	PO 11	PO12	PSO 1	PSO 2	PSO 3
CO1	**3**	**3**													
CO2	**3**	**3**													
CO3				**2**							**2**	2			
CO4										**3**					
CO5									**3**	**3**					

Course Contents:

Unit	Contents
I	**Direction**: Introduction to direction nomenclature, Distance covered , Shortest possible distance by pythagoras theorem, Concept of Shadow **-Analogy**: All mathematical analogies **-Seating Arrangement**: Circular and Linear arrangement–**Syllogism**: Deductive reasoning, categorial syllogism, Some, All, few and Venn diagrams
II	**Data sufficiency**: Questions and statements **-Coding and Decoding**: Coding, Decoding & Patterns **- Number Series** : In place of alphabets the required number to be filled and addition and subtraction carried out accordingly – **Cryptarithmetic**: In place of alphabets the required number to be filled and addition and subtraction carried out accordingly
III	**Orientation - Researching Job and Company- Emerging Market Trends:** Experience sharing of Major Campus interviews, Skill Requirements, Current Market trends, Researching the Job and company
IV	**Personal and company commercial:** Guidelines for preparing a 30- 90 second self Introduction .Questions to think about in developing a commercial- Understand " What to avoid" in a commercial **- Self Selling Proficiency**: What to say and do, How to demonstrate commercial awareness in an interview ,Post Interview activity, Telephone etiquette in a phone Interview **Resume Building :**Guidelines on framing resume and cover letter Checklist to ensure completeness , Sample resumes and cover letter references Basic Guidelines on Video Resume an its difference with conventional
V	**Personal Interview- Group Discussion**: Preparation tips on GD and Extempore: Dos' and Donts', Presentation on PI Preparation and FAQs -Role Plays/ Mock Interview with Technical Faculty and Mock Interview by Faculty **Assessment and feedback series:**

Text Books	1.	Aggarwal, R. S. (2010). A Modern Approach to Verbal & Non-Verbal Reasoning (Revised ed.). S. Chand Publishing. ISBN: 978-8121924986.
	2	Panikar, S., & Sharma, P. (2021). *Communication skills for budding professionals* (2nd ed.). Global Education Ltd
Reference Books	1.	Sharma, A., & Kumar, M. (2018). Quantitative Aptitude for Competitive Examinations. Pearson Education. ISBN: 978-9353061742.
	2.	Nair, M., & Mulay, T. (2024). *The golden book on employability: Get hired...stay hired* (1st ed.). Global Education Ltd.

<table>
<tr><td colspan="11">Course Title: Universal Human Values 2 : Understanding Harmony</td></tr>
<tr><td rowspan="2">Semester</td><td rowspan="2">IV</td><td colspan="4" rowspan="2">Teaching Scheme</td><td colspan="5">Evaluation Scheme</td></tr>
<tr><td colspan="3">Theory</td><td colspan="2">Practical</td></tr>
<tr><td>Term</td><td>EVEN</td><td>Th</td><td>Tu</td><td>Pr</td><td>Credits</td><td>TAE</td><td>CAE</td><td>ESE</td><td>INT</td><td>EXT</td></tr>
<tr><td>Course Category</td><td>VEC2</td><td rowspan="2">2</td><td rowspan="2">--</td><td rowspan="2">--</td><td rowspan="2">2</td><td rowspan="2">10</td><td rowspan="2">15</td><td rowspan="2">50</td><td rowspan="2">--</td><td rowspan="2">--</td></tr>
<tr><td>Course Code</td><td>23BTSHL233 AI/CS/CY/DS/IT/EC/EE/ME/CE</td></tr>
<tr><td>Teaching Mode</td><td>Offline</td><td colspan="3" rowspan="2">3</td><td rowspan="2">Total</td><td colspan="3">75</td><td colspan="2">--</td></tr>
<tr><td>Duration of ESE</td><td>2 Hrs.</td><td colspan="5">75</td></tr>
</table>

Course Objectives	Development of a holistic perspective based on self- exploration about themselves (human being), family, society and nature/existence
	Understanding (or developing clarity) of the harmony in the human being, family, society and nature/existence
	Strengthening of self-reflection and development of commitment and courage to act.
Course Outcomes	1. Students are expected to become more aware of themselves.
	2. Students are expected to become more aware of their surroundings (family, society, nature).
	3. Students should become more responsible in life, and in handling problems with sustainable solutions, while keeping human relationships and human nature in mind.
	4. Students would have better critical ability, they would also become sensitive to their commitment towards what they have understood (human values, human relationship and human society).
	5. Students would be able to apply what they have learnt to their own self in different day-to-day settings in real life.

Mapping of Course Outcomes with Program Outcomes and Program Specific Outcomes:

Course Outcomes	Program Outcomes and Program Specific Outcomes														
	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO12	PSO 1	PSO 2	PSO3
CO1						**2**		**3**	**1**			**2**			
CO2			**3**			**2**		**2**		**2**		**2**			
CO3			**3**			**3**	**3**	**2**							
CO4			**2**			**2**	**2**	**2**							
CO5			**1**			**1**	**1**	**2**				**3**			

Course Contents:

Unit	Contents	Hours
I	**Course Introduction - Need, Basic Guidelines, Content and Process for Value Education:** Purpose and motivation for the course, Self-Exploration, Continuous Happiness and Prosperity, Right understanding relationship and physical facility, Understanding happiness and prosperity correctly, Method to fulfill the above human aspirations.	8
II	**Understanding Harmony in the Human Being - Harmony in Myself!** Understanding human being as a co-existence of the sentient 'I' and the material 'Body', Understanding the needs of Self ('I') and 'Body', Understanding the Body as an instrument of 'I', Understanding the characteristics and activities of 'I' and harmony in 'I', Understanding the harmony of I with the Body.	8
III	**Understanding Harmony in the Family and Society- Harmony in Human-Human Relationship** Understanding values in human-human relationship, Understanding the meaning of Trust, Understanding the meaning of Respect, Understanding the harmony in the society, Visualizing a universal harmonious order in society.	8
IV	**Understanding Harmony in the Nature and Existence - Whole existence as Coexistence** Understanding the harmony in the Nature, Interconnectedness and mutual fulfillment among the four orders of nature, Understanding Existence as Co-existence, Holistic perception of harmony.	8

Text Book	1.	Human values and Professonal Ethics by R R Gaur,R Sangal,G P Bagaria,Excel Books,New Delhi,2010
	1.	Jeevan Vidya: Ek Parichaya,A Nagaraj, JeevanVidya Prakashan,Amarkantak,1999

Reference Books	2.	Human Values, A.N.Tripathi, New Age Intl. Publishers, New Delhi 2004.
	3.	The story of my experiments with truth-by Mohandas Karamchand Gandhi
	4	Small is beautiful-E.F Schumacher
	5	Slow is beautiful-Cecile Andrews

MD2- Cyber Crimes and Investigation_**NEP_2020**

Course Title: MD2- Cyber Crimes and Investigation_**NEP_2020**										
Semester	IV	Teaching Scheme				Evaluation Scheme				
Term	EVEN					Theory			Practical	
Course Category	MD2	Th	Tu	Pr	Credits	TAE	CAE	ESE	Int	Ext
Course Code	**23BTCYL205**	2 Hrs	NA	NA	2	10	15	50	-	-
TeachingMode	Offline									
Duration of ESE	3 Hrs	2 Hrs			Total	**75**			-	
						75				

Course Objectives	To extend the students' knowledge of Cyber Crimes & IT ACT
	To enhance their expertise in Cyber Crime Investigation and methodologies.
	To carry out real life cyber forensics assignments..
Course Outcomes	Up on successful completion of this course, student will be able to:
	CO1: Learning the basics of cyber-crime investigation
	CO2: Case studies of real-world cyber crimes
	CO3: Learning about IT act
	CO4: Indepth learning about data recovery tools, cyber forensics and ethics
	CO5: Analyzing investigation using various tools

Mapping of Course Outcomes with Program Outcomes and Program Specific Outcomes

Course Outcome	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO2	PSO3
CO1	2	2	3	--	2	--	--	--	--	1	--	--	3	3	3
CO2	2	--	--	3	--	2	2	--	2	--	--	2	2	2	3
CO3	2	2	3	--	--	--	--	--	--	--	2	--	2	1	2
CO4	--	--	2	2	3	--	--	2	2	--	--	--	1	2	1
CO5	3	2	--	--	--	--	--	--	--	--	--	--	1	2	2

Course Contents:

Unit	Contents	Hours
I	Introduction to Cyber Crime Investigation & Cyber Forensics Cyber Crime Investigation - Cyber Warfare, Terrorism & Social Networking - Cyber Forensics and Incident Handling - Case Study - Cyber Forensic Basics - Storage Fundamentals - File System Concepts	3
II	Investigating Real World Cyber Crimes Investigating Social Media Profile Impersonation cases - Phishing Cases - Data Theft Cases - Corporate Espionage Cases - Email Fraud Cases - Credit Card Fraud Cases - Cyber Pornography Cases - Denial of Service Attacks Cases - Cyber defamation Cases - Real Life Case Studies	4
III	IT ACT, Offenses and Penalties Offences under the Information and Technology Act 2000 - Penalty and adjudication - Punishments for contraventions under the Information Technology Act 2000 (Case Laws, Rules and recent judicial pronouncements to be discussed) - Limitations of Cyber Law	4
IV	Data Recovery Tools, Process, and Ethics & Cyber Forensics Investigation Gathering Evidence- Precautions, Preserving and safely handling original media for its admissibility - Document a Chain of Custody and its importance - Complete timeline analysis of computer files based on file creation - file modification and file access - Data Protection and Privacy. Introduction to Cyber Forensic Investigation – **Assignment:- Assignment should be a practical based on Tools**	4
V	Investigation Tools – eDiscovery - Digital Evidence Collection – Evidence Preservation - E-Mail Investigation - Encryption and Decryption methods - Search and Seizure of Computers – Work on open Source, Commercial tools and Cyber range **Assignment:- Assignment should be a practical based on Tools**	3

Text Books	1.	International domain name law: ICANN and the UDRP. Oxford: Hart Publishing by Lindsay D
	2.	. Investigating computer- related crime a handbook for corporate investigators. Boca Raton Stephenson P.R. & Gilbert K
ReferenceBooks	1.	Incident response & computer forensics (2nd ed.) McGraw-Hill Companies by Prosise C. & Mandia K.
	2.	Cyber Law: The Law of the Internet and Information Technology. Pearson Education by Craig B 7.Incident response & com