Maratha Vidya Prasarak Samaj's

Karmaveer Adv. Baburao Ganpatrao Thakare College of Engineering

An Autonomous Institute affiliated to Savitribai Phule Pune University, Pune

Udoji Maratha Boarding Campus, Gangapur Road, Nashik - 422 013, Maharashtra, India

Post-Graduate Program Syllabus

Second Year M.Tech. Mechanical Engineering (Design Engineering)

(2024 Pattern) V1.0

As per NEP 2020

Academic Year 2025-26

(Copy for Student Circulation Only)

Second Year M.Tech. Mechanical Engineering (Design Engineering)

Curriculum Structure (2024 Pattern) V1.0 Semester - III

Course Code	Course Type	Course Name	Teaching Scheme (Hrs/Week)			Evaluation Scheme and Marks						Credits			
			TH	PR	TU	CCE	ESE	TW	PR	OR	TOT	TH	PR	TU	TOT
201301	**SBC-I**	Dissertation Phase - I	-	20	-	-	-	100	-	50	**150**	-	10	-	**10**
201302	**ELC-II**	Research Seminar	-	4	-	-	-	-	-	50	**50**	-	2	-	**2**
201303	**SLC**	Skill Development Laboratory-III	-	4	-	-	-	50	-	-	**50**	-	2	-	**2**
201304	**INT**	Internship	-	8	-	-	-	50	-	50	**100**	-	4	-	**4**
200306	**VEC**	Human Rights @	-	-	2	-	-	50	-	-	**50**	-	-	2	**2**
Total			**-**	**36**	**2**	**-**	**-**	**250**	**-**	**150**	**400**	**-**	**18**	**2**	**20**

Abbreviations: **TH:** Theory **PR:** Practical **TU:** Tutorial **CCE:** Continuous Concrete Evaluation
ESE: End-Semester Examination **TW:** Term Work **OR:** Oral **TOT:** Total

@ common to all branches

Second Year M.Tech. Mechanical Engineering (Design Engineering)

Curriculum Structure (2024 Pattern) V1.0 Semester - IV

Course Code	Course Type	Course Name	Teaching Scheme (Hrs/Week)			Evaluation Scheme and Marks						Credits			
			TH	PR	TU	CCE	ESE	TW	PR	OR	TOT	TH	PR	TU	TOT
201401	**SBC-II**	Dissertation Phase - II	-	32	-	-	-	150	-	100	**250**	-	16	-	**16**
200402	**MLC**	Introduction to Cyber Security @	3	2	-	50	50	-	-	50	**150**	3	1	-	**4**
Total			**3**	**34**	**-**	**50**	**50**	**150**	**-**	**150**	**400**	**3**	**17**	**-**	**20**

Abbreviations: **TH:** Theory **PR:** Practical **TU:** Tutorial **CCE:** Continuous Concrete Evaluation
ESE: End-Semester Examination **TW:** Term Work **OR:** Oral **TOT:** Total

@ common to all branches.

- **Summary of Credits and Total Marks:**

Semester	Credits	Marks
III	20	400
IV	20	400
Total	**40**	**800**

• Definition of Credit :

The Post Graduate (P.G.) programmes will have credit system. The details of credit will be as follow.
1 Credit = 1 hour/week for lecture
= 2 hours/week for practical
= 1 hour/week for tutorial

Semester - III

Course Code: 201301	Course Name: Dissertation Phase - I	
Teaching Scheme	**Credit**	**Evaluation Scheme**
Practical : 20 Hours/Week	**10**	**TW** : 100 Marks **OR** : 50 Marks

Prerequisite Courses:

- Seminar, Research Proposal Writing.

Course Objectives:

- Identify gaps in existing literature or technologies and propose innovative solutions.
- Apply theoretical knowledge to practical scenarios to design, implement, and test solutions.
- Develop project planning, time management, and organizational skills.

Course Outcomes:

After successful completion of the course, learner will be able to:

CO1: Review relevant literature, including books and national/international peer-reviewed journals, and consult experts on the chosen research topic.

CO2: Use various software, computational, and analytical tools effectively.

CO3: Design and develop an experimental set up/ equipment/test rig.

Course Contents:

Project Work Stage - I is an essential part of the overall project. In this stage, the student is expected to complete a portion of the project, which includes defining the problem statement, reviewing related literature, providing a project overview, outlining the implementation plan (using tools like UML diagrams, ER diagrams, block diagrams, PERT charts, etc.), and designing the layout or setup.

Guidelines for Conduction:

Coordinator needs to assign a domain specific guide / mentor to every student. The finalization of project topic will be considered with the concern of the mentor only. The dissertation stage - I work will be assessed by a panel of examiners of which one is necessarily an external examiner. The assessment will be broadly based on literature study, work undergone, Algorithm / method understanding, content delivery, presentation skills, documentation and report. The continuous assessment of the progress needs to be documented unambiguously. For standardization and

documentation, it is recommended to follow the formats and guidelines in the dissertation workbook approved by the department. All the mentors must encourage their students to initiate the process of copyright registration for their dissertation work as part of academic compliance and intellectual property protection.

Instructions for Students:

The students are expected to validate their study undertaken by publishing it at standard platforms. The investigations and findings need to be validated appropriately at standard platforms-conference and/or peer reviewed journals. The student has to exhibit the continuous progress through regular reporting and presentations and proper documentation of the frequency of the activities in the sole discretion of the PG coordination.

- Identify the Problem statement of recent trends in Mechanical Engineering.
- Study of Literature and previous work related to the problem identified.
- Analysis and study of design, flowchart and other diagrams which are related to the solution.
- Representation and study of Methods / Algorithms to solve the problem.
- 30% or Partial implementation of the solution to the identified problem.
- Every student is required to present and publish a Review paper at International Journal (International Peer Review)
- All M.Tech students are required to initiate the process of copyright registration for their dissertation work as part of academic compliance and intellectual property protection.
- Students can present their work through PPTs and any supporting documents.
- At the end of semester, every student must submit THREE copies of the manuscript of their work by following the instructions and specified format given by the coordinator

Learning Resources:

Text Books:

1. Research Methodology: A Step-by-Step Guide for Beginners, Ranjit Kumar
2. Design Thinking: Understanding How Designers Think and Work, : Nigel Cross

Reference Books:

1. TThe Craft of Research, Wayne C. Booth, Gregory G. Colomb, Joseph M. Williams
2. Project Management for Engineering and Technology, John M. Nicholas, Herman Steyn.

Web link for MOOC / NPTEL Links:

1. NPTEL – Research Methodology
   https://nptel.ac.in/courses/121/107/121107007/
2. Coursera – Academic Research and Writing (University of California)
   https://www.coursera.org/learn/academic-research-writing
3. edX – Research Methods (University of London)
   https://www.edx.org/course/research-methods
4. Future Learn – Project Management for Research
   https://www.futurelearn.com/courses/project-management-for-research

Course Code: 201302	Course Name: Research Seminar	
Teaching Scheme	**Credit**	**Evaluation Scheme**
Practical : 4 Hours/Week	**2**	**OR** : 50 Marks

Prerequisite Courses:

- Research Methodology Concepts.

Course Objectives:

- To identify the latest topic in the field of design engineering.
- To carry out literature surveys and problem identification.
- Enhance presentation and report writing skills

Course Outcomes:

After successful completion of the course, learner will be able to:

CO1: Identify the research seminar topic in the field of design engineering by literature survey.

CO2: Understand how research papers are written and understand modeling, theory, concept, and simulation related to the topic of interest.

CO3: Effectively communicate the research seminar topic through oral presentation.

CO4: Prepare a detailed seminar report.

Course Contents:

Research seminar topic will be based on dissertation phase-I, considering recent trends in the field of mechanical engineering. This seminar will be mainly focuses on domain introduction, Study of literature related to the topic and study of methodology or techniques which are going to get implemented in the project. The student shall submit the duly certified seminar report in standard format, also students will have to present their work in any International Conference for satisfactory completion of the work by the concerned guide and head of the department.

Guidelines for Topic Selection:

1. Individual students need to study recent topics in the field of mechanical design engineering under the guidance of an allocated guide.
2. Students can choose topic related to mechanical design engineering, considering recent trends and its societal importance.
3. The extensive literature survey, mathematical modeling of particular methods,

experimentation and valuable conclusion is expected from seminar study.

4. Seminar report should be submitted as a compliance of term work.
5. Technical paper presentation in any International Conference is MANDATORY as the outcome of the seminar.
6. Total Duration: 48 Contact hours and additional 48 hours should be spent by students on completion of related activities and requirements.

Suggested Rubrics for TW / PR:

Assessment Parameter	Criterion	Review Assessment Weightage
AP 1	**Preparation of PPTs** ● Organization of contents ● Visual Aids	**20 M**
AP 2	**Presentation Skills** ● Subject Knowledge ● Communication skills ● Gesture & Postures	**30 M**
AP 3	**Viva Voce**	**10 M**
AP 4	**Report/s** ● Organization of contents ● Visual Aids and Conclusion	**20 M**
AP 5	**Technical Presentation at international Conference**	**20 M**
	Total Weightage (TW and OR)	**100 M**
Note: All the above parameters are mandatory for granting the TW / OR.		

Course Code: 201303		Course Name: Skill Development Laboratory – III
Teaching Scheme	**Credit**	**Evaluation Scheme**
Practical : 4 Hours/Week	**2**	**TW** : 50 Marks

Brief about this Course:

MOOCs, or Massive Open Online Courses, is offered as Skill Development Laboratory – III course. MOOCs, or Massive Open Online Courses, are online learning platforms that provide access to educational content to a large number of learners worldwide. They are often provided by top universities, companies, and educators through platforms, such as SWAYAM, NPTEL, Coursera, edX, Udemy etc. They aim to democratize education by making high-quality learning resources available to anyone with an internet connection. This course provides lifelong learning and skill development among students, focusing on a complete understanding of recent trends.

Course Objectives:

- Expose learners to high-quality educational content from top educators.
- Learning advanced topics which will enhance knowledge of core courses.
- Bridge the skill gaps.
- Inculcate habit of self-learning and life-long learning.

Course Outcomes:

The Course Outcomes of MOOC depends upon the course chosen by the student.

Course Contents:

Course Content of MOOC depends upon the Course chosen by the student.

Guidelines for Topic Selection:

1. Students should choose the at least 8 week course from aforementioned MOOCs platforms and get it approved by the course coordinator at the start of semester.
2. Complete the course and appear for the proctored exam conducted by respective platforms at the end of the course.
3. Marks / Grades obtained in the exam will be considered for evaluation of the MOOC.

Learning Resources:

Students should register for the course as per their domain. Some of the courses suggested are as

follows.

Sr. No.	Name of Course	Offered by	Duration (Weeks)	Link
1.	Carbon Accounting and Sustainable Designs in Product Lifecycle Management	IIT Kanpur	12	https://nptel.ac.in/courses/121104452
2.	Work System Design	IIT Roorkee	12	https://nptel.ac.in/courses/112107249
3.	Design Practice	IIT Kanpur	8	https://nptel.ac.in/courses/112104228
4.	Engineering Economic Analysis	IIT Roorkee	8	https://nptel.ac.in/courses/112107209
5.	Manufacturing Guidelines for Product Design	IIT Roorkee	8	https://nptel.ac.in/courses/112107258

Instructions for Evaluations:

Suggested Rubrics for MOOC:

Sr. No.	Particulars	Marks Distribution
1.	Registration to NPTEL Course	**05 M**
2.	Completion of Course & Assignment Submission	**15 M**
3.	NPTEL Exam at Designated Center	**10 M**
4.	NPTEL Certification	**20 M**

Notes:

1. If not registered to NPTEL / Swayam course, then only handwritten assignments will be considered for evaluation.
2. If a student is not having certification, but has registered for course then he/she will be eligible for marks given from above table.

Course Code: 201304	Course Name: Internship	
Teaching Scheme	**Credit**	**Evaluation Scheme**
Practical : 8 Hours/Week	**4**	**TW** : 50 Marks **OR** : 50 Marks

Course Objectives:

- To develop industry-relevant skills, professional ethics, and workplace etiquette through experiential learning.
- To promote exposure to current industry practices, tools, and trends, facilitating a bridge between academic learning and industrial applications.
- To develop interpersonal, communication, and collaborative skills by working in diverse professional environments.
- To prepare students for future employment through firsthand experience, understanding of industry expectations, and professional networking.

Course Outcomes:

After successful completion of the course, learner will be able to:

CO1: Apply theoretical knowledge and engineering principles to real-world industry problems and professional practices.

CO2: Demonstrate proficiency in tools, techniques & methodologies relevant to the internship domain.

CO3: Exhibit professional behavior, including teamwork, time management, ethics, and communication skills in a workplace environment.

CO4: Effectively communicate findings and insights through well-structured reports and professional presentations.

Guidelines for Topic Selection:

1. Individual student needs to attempt for OJT/ Internship in an industry in the field of Mechanical Design Engineering.
2. If not received any OJT/ Internship, student can choose in-house mini project related to Mechanical Design Engineering.
3. Students need to submit a detailed report and present their work to an evaluation committee appointed by the Head of the Department.

Evaluation Criteria:

The student will be evaluated by the panel based on the below criteria. Weightage for each criterion will be determined by the evaluation committee and will be informed to the students. The following is the suggested marks allocation.

Criteria	Description	Weightage (Term Work Out of 100)	Weightage (Term Work Out of 50)	Marks Allotted
1.	Relevance of the area of work.	20	--	20 M
2.	Performance of the task/s.	20	--	20 M
3.	Crucial learning's from the work and maintaining daily workbook.	30	--	30 M
4.	Report Preparation.	30	--	30 M
5.	Clarity and structure of presentation.	--	15	15 M
6.	Articulation of key learnings.	--	15	15 M
7.	Response to questions.	--	20	20 M
	Grand Total	100	50	150

Course Code: 200306	Course Name: Human Rights	
Teaching Scheme	**Credit**	**Evaluation Scheme**
Tutorial : 2 Hours/Week	**2**	**TW :** 50 Marks

Course Objectives:

- To introduce the concept, evolution and importance of human rights and duties for responsible citizenship.
- To develop understanding of the social, economic, cultural, and political challenges faced by vulnerable groups such as women, children, elderly, disabled persons, minorities, and marginalized communities.
- To acquaint with the concept, characteristics, and classifications of socially and economically disadvantaged groups.
- To identify key social, economic, political, and human rights challenges faced by disadvantaged and vulnerable groups in contemporary society.

Course Outcomes:

After successful completion of the course, learner will be able to:

CO1: Discuss concept, evolution, importance of human rights and duties for responsible citizenship.

CO2: Explain fundamental concepts, significance of human rights in relation to vulnerable groups.

CO3: Describe meaning, features, and scope of socially and economically disadvantaged groups.

CO4: Demonstrate domain specific human rights and analyse major challenges faced by socially and economically disadvantaged groups.

Course Contents

UNIT-I: Introduction to Human Rights and Duties 06 Hours

Meaning and significance of human rights education, objectives and models of human rights education, significance of values and their linkage with human rights, human values: dignity, liberty, equality, justice, ethics, morals, unity in diversity. Types of rights: natural, legal, claim, liberty, positive and negative, individual and group, universal rights, concept and types of duties:

moral, legal, positive, negative, perfect, imperfect, relationship between rights and duties, role of national law and responsibilities of individuals and states.

UNIT-II: Human Rights and Vulnerable Groups 06 Hours

Meaning and concept of vulnerable and disadvantaged groups. Human rights and vulnerability women and gender minorities: gender equality, violence, Children: Child protection laws, child labor, abuse, Persons with Disabilities: Definition, barriers, inclusive development, indigenous and ethnic minorities: Cultural identity, land/resource rights, constitutional safeguards. Human rights of vulnerable groups: Stateless persons, sex workers, migrant workers, refugees, migration rights, 1951 refugee convention, labor protection, HIV/AIDS victims.

UNIT-III: Socially and Economically Disadvantaged Groups 06 Hours

Older persons: neglect, health, social security measures, other groups: people with chronic illness, victims of conflict/terrorism. Existing challenges: poverty, inequality, marginalization, weak enforcement, emerging issues: globalization, climate change, digital divide, surveillance, towards inclusion: community participation, policy reform, education, empowerment, civil society role.

UNIT-IV: Challenges, Way Forward and Domain Specific Human Rights 06 Hours

Existing challenges: Poverty, inequality, marginalization, weak enforcement. **Emerging issues:** Globalization, climate change, digital divide, surveillance. **Towards inclusion:** Community participation, policy reform, education, empowerment, civil society role.

Domain Specific Human Rights

Civil Engineering: Right to life and safety, right to water and sanitation, right to a clean, healthy, and sustainable environment, ethical and sustainable development, minimize risk of legal disputes, project delays, and community resistance.

Computer Engineering: Science, technology and human rights. Data privacy and surveillance ethics. Real-world human rights challenges in Tech industries, digital sovereignty and cyber security. AI governance and ethical regulation.

Mechanical Engineering: Right to safety and protection: safe design of machines, tools, and systems. Right to health and workplace environments. Minimizes health risks and promotes comfortable, accessible, human-friendly systems. Right to human dignity over commercial profit.

E&TC Engineering: Technology and online expression, website blocking and content filtering. Balancing national security, public order, and freedom of expression, privacy rights and data protection, digital inclusion and the digital divide, emerging technologies and future challenges.

Business Administration: Right to equality, dignity, and non-discrimination; fair wages and

decent working conditions; protection against harassment. Rights to privacy, safe workplaces, social security, and freedom of association. Managerial responsibilities and ethical leadership. An inclusive and productive workplace.

Learning Resources:

Text Books:

1. Introduction to Human rights and duties by Dr. T.S.N. Sastry Published by SPPU, Pune.
2. Human rights of vulnerable and disadvantaged groups by Dr. T.S.N. Sastry Published by SPPU, Pune.
3. P.K. Pandey (Ed) Human Rights , APH Publishing Corporation, 2012.

Reference Books:

1. Andrew Clapham : Human Rights Lexion, Oxofrd University Press; 2005.
2. Andrew Clapham:Human Rights A very short Introduction; 2007, Oxford University Press.
3. Magdalena Sepulveda and others: Human Rights : Hand Book, 2004 University for Peace of the United Nations.
4. Human rights and Vulnerable Groups available at http://www.sagepub.com/upmdata/11973_Chapter_5.pdf
5. Vulnerability and Vulnerable Groups; available at http://siteresources.worldbank.org/INTSRM/Publications/20316319/RVA.pdf

Web link for MOOC / NPTEL Links:

1. https://www.youtube.com/watch?v=Y-yBzlNHIyk
2. https://www.youtube.com/watch?v=wDWPiWAJplA

Term Work

Term work shall consist of handwritten a minimum of 08 assignments (Two per unit). The course teacher will decide the assignments based on the content.

Semester - IV

Course Code: 201401	Course Name: Dissertation Phase - II	
Teaching Scheme	**Credit**	**Evaluation Scheme**
Practical : 32 Hours/Week	**16**	**TW** : 150 Marks **OR** : 100 Marks

Prerequisite Courses:

- Research Methodology Concepts.

Course Objectives:

- Identify gaps in existing literature or technologies and propose innovative solutions.
- Apply theoretical knowledge to practical scenarios to design, implement and test solutions.
- Develop project planning, time management and organizational skills.

Course Outcomes:

After successful completion of the course, learner will be able to:

CO1: Review relevant literature, including books and national/international peer-reviewed journals, and consult experts on the chosen research topic.

CO2: Use various software, computational, and analytical tools effectively.

CO3: Design and develop an experimental set up/ equipment/test rig.

Course Contents:

In Dissertation Stage–II, the student shall consolidate and complete the remaining part of the dissertation which will consist of selection of technology, installations, implementations, testing, results, measuring performance, discussions using data tables as per parameter considered for the improvement with existing/known algorithms/systems, comparative analysis, validation of results and conclusions.

Guidelines for Conduction:

The student has to exhibit the continuous progress through regular reporting, presentations, and proper documentation of the frequency of the activities in the sole discretion of the PG coordination. The continuous assessment of the progress needs to be documented unambiguously. It is recommended to continue with guidelines and formats as mentioned in the Dissertation Workbook approved by the department. The dissertation stage - II work will be assessed by a panel

of examiners of which one is necessarily an external examiner. The assessment will be broadly based on results, comparisons and implementation of Algorithm / method. The continuous assessment of the progress needs to be documented unambiguously. For standardization and documentation, it is recommended to follow the formats and guidelines in the dissertation workbook approved by the department.

Instructions for Students:

The students are expected to validate their study undertaken by publishing it at standard platforms. The investigations and findings need to be validated appropriately at standard platforms – peer reviewed journals.

- Implementation and Representation of Methods / Algorithms to solve the problem.
- 100% implementation of the solution to the identified problem.
- Every student is required to publish a final paper at the International Journal (International Peer Review) by maintaining the standards of IPR.
- Students can present their work through PPTs and any supporting documents.
- At the end of semester, every student must submit THREE copies of the manuscript of their work by following the instructions and specified format given by the coordinator.

Learning Resources:

Text Books:

1. Research Methodology: A Step-by-Step Guide for Beginners, Ranjit Kumar
2. Design Thinking: Understanding How Designers Think and Work: Nigel Cross.

Reference Books:

1. The Craft of Research, Wayne C. Booth, Gregory G. Colomb, Joseph M. Williams
2. Project Management for Engineering and Technology, John M. Nicholas, Herman Steyn.

Web link for MOOC / NPTEL Links:

1. NPTEL – Research Methodology
   https://nptel.ac.in/courses/121/107/121107007/
2. Coursera – Academic Research and Writing (University of California)
   https://www.coursera.org/learn/academic-research-writing
3. edX – Research Methods (University of London)
   https://www.edx.org/course/research-methods
4. Future Learn – Project Management for Research
   https://www.futurelearn.com/courses/project-management-for-research

Course Code: 200402		Course Name: Introduction to Cyber Security
Teaching Scheme	**Credit**	**Evaluation Scheme**
Theory : 3 Hours/Week **Practical** : 2 Hours/Week	**3** **1**	**CCE** : 50 Marks **ESE** : 50 Marks **OR** : 50 Marks

Expected Prerequisite Courses:

- Computer Networks & Security.

Course Objectives:

- To understand the fundamental concepts, terminologies, and increasing threat landscape in cyber security.
- To identify and analyze different forms of cybercrimes, attacks, and malicious activities across digital platforms.
- To explore the legal framework, national and international cyber laws, and regulations governing cyber security.
- To understand and evaluate data privacy, data security principles, and compliance mechanisms.
- To develop skills to manage organizational cyber security through policies, risk assessment, audit, incident response, and governance strategies.

Course Outcomes:

After successful completion of the course, learner will be able to:

CO1: Explain the core concepts and terminology of cyber security and modern cyber threat landscape.

CO2: Identify and classify various cybercrimes, social engineering attacks, and reporting procedures.

CO3: Examine cyber laws, legal provisions, and ethical considerations related to emerging technologies.

CO4: Analyze data privacy, data protection laws, and big data security concerns at national and international levels.

CO5: Develop cyber security plans, policies, and apply risk management and governance principles in organizations.

Course Contents

UNIT-I: Overview of Cyber Security 08 Hours

Cyber security increasing threat landscape, cyber security terminologies - cyberspace, attack, attack vector, attack surface, threat, risk, vulnerability, exploit, exploitation, hacker, non-state actors, cyber terrorism, critical IT and national critical infrastructure, cyberwarfare.

UNIT-II: Cyber Crimes 08 Hours

Types of cyber crime, cyber crimes targeting computer systems and mobiles, online scams and frauds, darknet - illegal trades, drug trafficking, human trafficking, social media scams and frauds, crime against persons, social engineering attacks, cyber police stations, crime reporting procedure, hacking and cracking, types of hacker.

UNIT-III: Cyber Laws 08 Hours

Cyber-crime and legal landscape around the world, IT Act, 2000 and its amendments. Limitations of IT Act, 2000. Cyber crime and punishments, Cyber laws, legal and ethical aspects related to new technologies - AI/ML, IoT, blockchain, darknet and social media, cyber laws of other countries, case studies.

UNIT-IV: Data Privacy and Data Security 08 Hours

Defining data, meta-data, big data, non-personal data. Data protection, data privacy and data security, personal data protection bill and its compliance, data protection principles, big data security issues and challenges, data protection regulations of other countries- General Data Protection Regulations (GDPR), 2016 Personal Information Protection and Electronic Documents Act (PIPEDA), social media- data privacy and security issues.

UNIT-V: Cyber Security Management, Compliance and Governance 08 Hours

Cyber security plan - cyber security policy, cyber crises management plan, business continuity, risk assessment, types of security controls and their goals, cyber security audit and compliance, national cyber security policy and strategy.

Learning Resources:

Text Books:

1. Cyber Security Understanding Cyber Crimes, Computer Forensics and Legal Perspectives by Sumit Belapure and Nina Godbole, Wiley India Pvt. Ltd.
2. Information Warfare and Security by Dorothy F. Denning, Addison Wesley.

Reference Books:

1. Security in the Digital Age: Social Media Security Threats and Vulnerabilities by Henry A. Oliver, Create Space Independent Publishing Platform.
2. Data Privacy Principles and Practice by Natraj V. & Ashwin Shriram, CRC Press.
3. Information Security Governance, Guidance for Information Security Managers by W. KragBrothy, 1st Edition, Wiley Publication.
4. Auditing IT Infrastructures for Compliance by Martin Weiss, Michael G. Solomon, 2nd Edition, Jones Bartlett Learning.

Web link for MOOC / NPTEL Links:

1. SWAYAM Course: "Introduction to Cyber Security" by Dr. Jeetendra Pande
   https://onlinecourses.swayam2.ac.in/nou25_cs18/preview
2. NPTEL Course: "Cyber Security and Privacy", IIT Madras by Prof. Saji K Mathew
   https://nptel.ac.in/courses/106106248
3. Coursera Course "Introduction to Cyber Security"
   https://www.coursera.org/specializations/intro-cyber-security
4. SWAYAM Course: "Cyber Laws" by Dr Vishal Goyal, Punjabi University, Patiala
   https://onlinecourses.swayam2.ac.in/cec25_cs04/preview

Activity based Learning (Suggested Activities in Class)

1. Flipped Classroom
2. Role Play on Cyber Crime Trials
3. Case Study Analysis
4. Group Discussions on Global Cyber Law Trends
5. Quizzes/Assignment.

List of Practicals

1. Identify the platforms for reporting cyber-crimes.
2. Registering complaints on a social media platform.
3. Prepare password policy for computer and mobile device.
4. List out security controls for computer and implement technical security controls in the personal computer.
5. List out security controls for mobile phone and implement technical security controls in the personal mobile phone.
6. Log into computer system as an administrator and check the security policies in the system.