**BML MUNJAL**
**UNIVERSITY**
**FROM HERE TO THE WORLD**

# SCHOOL OF ENGINEERING & TECHNOLOGY

# COURSE FILE

Program: Electronics and Computer Engineering
Course Code: ABC1404
Course Title: Seminar/Case Studies
Module Semester: 5th
Session: 2024-25

**Index**

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| 15 | Reflections from the Mid-term semester feedback received, and interventions made to enhance the student learning and continuous improvement in teaching and learning strategies. |

| 16 | Interventions made for slow performers and advanced learners, highlighting initiatives taken for student improvements (retest, resubmissions etc.) |
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| 17 | End Semester Question papers with sample solutions |
| 18 | Detail of Marks in all components up to the End Semester |
| 19 | Attendance Report |
| 20 | Final record of Results (including the grades) |
| 21 | Analyzing Direct Feedback received on Course Outcomes |
| 22 | CO Attainment Measurement Analysis |
| 23 | Interventions made for slow performers and advanced learners, highlighting initiatives taken for student improvements (retest, resubmissions etc.) |
| 24 | End Semester Question papers with sample solutions |
| 25 | Feedback (class committee or otherwise) and corrective actions (if any) |
| 26 | Faculty Course Review (if any, like Use of Innovative Pedagogies; Technology; Experiential Learning; Integration with the Vision and Mission of the University; Feedback; Course Outcome attainment for the next run of the course) |
| 27 | Any other additional information |

# 1. Course Details

- Course Code: ABC1404
- Course Title: Seminar/Case Studies
- **Module/Semester: 5th**
- Session: 2024-25

## 2. Vision, Mission of the University

**Vision**

BML Munjal University seeks to nurture ethical leaders who are skilled, knowledgeable and have the life skills required for leading their organizations to success. The university shall seek the advancement and dissemination of practically oriented knowledge benchmarked with the best global standards.

**Mission**

BML Munjal University aims to be a leading university for the quality and impact of its teaching, research and linkages with major stakeholders. The focus of the university is to find creative solutions to problems through application of knowledge. The university aims to create a talented community of students and faculty who excel in teaching, learning and research, in a creative and stimulating environment. The university will collaborate with other institutions for development of science, technology and arts in the global context.

# 3. Graduate Attributes

- Acquire and apply practical understanding of discipline knowledge.
- Demonstrate a sense of ethics and display excellence in both personal and professional life.
- Exhibit problem solving, critical thinking skills and investigative capability to address real world problems.
- Manifest leadership qualities and work effectively in teams across globally diverse environments.
- Be a lifelong learner with an entrepreneurial mindset to innovate in the constantly changing global scenario.
- Possess a strong sense of inquiry and design innovative solutions for positive societal impact.
- Be effective communicators and possess an empathetic outlook.

# 4. Vision, Mission of the School

**Vision of School:**

To be amongst the leading engineering schools of the country recognized globally for excellence in teaching and research with focus on experiential learning, innovation and entrepreneurship.

**Mission of School:**

* Providing high-quality learning experience to our students, preparing them to be global leaders, and contributing to the development of society through research, innovation, and entrepreneurship.
* Creating an inclusive and diverse learning environment that fosters creativity, critical thinking, and ethical values.

* Collaborating with industry, government, and other institutions to address complex societal challenges and promote sustainable development.

# 5. PEOs and POs of the Program

Program Educational Objectives (PEO):

PEO 1 – Domain knowledge:

Exhibit strong knowledge of the management discipline in a global context.

PEO 2 – Informed Decision Making:

Demonstrate higher order critical thinking and problem-solving capabilities with an entrepreneurial mindset.

PEO 3 – Managerial Skills:

Be effective managers with good communication skills, high levels of emotional intelligence, and innovative thinking.

PEO 4 – Exhibit Leadership:

Possess ethical leadership qualities for effective management decisions.


Program Outcomes (PO):

PO 1 –Apply Business knowledge:

Gain in depth understanding of various management disciplines and apply the concepts for business decision making.

PO 2 –Diverse Perspective:

Integrate diversity and multidisciplinary perspectives in business decisions making.

PO 3 –Cognitive Skills:

Utilize quantitative and qualitative methods to investigate and solve complex business problems by planning and conducting research for Investigation with critical thinking and problem-solving skills.

PO 4 –Innovation and Entrepreneurship:

Apply relevant and creative frameworks across multiple disciplines to create innovative and entrepreneurial solutions.

PO5 – Lead empathetic and ethical leadership:

Demonstrate social responsibility, teamwork, life skills to lead organizations ethically.

PO6 – Effective Communication for Impact:

Communicate effectively across all levels and society at large.

## 6. Course Description and its objectives

The main objective of this course is to introduce students to different data structures and illustrate their effective use in solving technical and logical problems. The course comprehensively explores different problem-solving techniques and skills. Proficiency in problem-solving skills is a fundamental expectation for any competent developer, as these concepts are commonly assessed by reputable companies during the screening process for software developer positions. The primary emphasis will be on achieving a deep understanding of data structures, their implementation, practical applications through problem-solving scenarios, exploring various programming paradigms, algorithm analysis, and the practical application of different data structures and algorithms. This course explores the fundamental workings of algorithms and data structures, which lie at its core essence.

# 7. Course Outcomes and CO-PO Mapping

**Course Outcomes:**

CO1:

CO2:

CO3:

**CO/PO Mapping:**

| Course Outcomes (CO) | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
|---|---|---|---|---|---|---|
| CO1 | | | 2 | 2 | 2 | |
| CO2 | | | | | | |
| CO3 | | 3 | 3 | 2 | | |

## 8. Course Syllabus

| Sr. No. | Content | CO | Sessions |
|---------|---------|----|----------| 
| 1 | Linear Search, Maximum in an Array, Sorting(Selection, Bubble and Insertion), Binary search, Kadane's Algo-O(N), Merge two sorted arrays, Rotate Array anti clock wise by k times, Unique Number-1, and tell about bitwise operators, Basics of strings, String methods, String builder, Mutable and Immutable concepts, 2D Arrays: Wave Print, Spiral Print, and Transpose | 1 | 1 |
| 2 | Recursion: Factorial, Fibonacci, isArraySorted, SumofArray, Print Numbers â€" 1) Increasing Order 2) Decreasing Order, MergeSort, Subsequence, Rat in Maze, N_Stairs, Subset Sum | 2 | 1 |
| 3 | Stack: stack implementation, Queue implementation, Linkedlist implementation(Add and Delete), Mid (Cycle detection hints), Reverse LinkedList, Merge two Sorted LinkedList, Intersection of two LinkedList, Binary Tree implementation and traversal of binary tree(PreOrder, InOrder and PostOrder), Diameter-O(N^2) and O(N) height, count number of node, Level-Order, Create Tree using Pre and Inorder, Create Tree using level-order, Binary Search Tree implementation, Addition and Deletion | 2 | 1 |
| 4 | BST to LinkedList, Balanced binary Tree, Valid BST, priority queue Collections, Kth Smallest, Meeting Room-2, Merge k Sorted List, Map and Set Collections (HashMap TreeMap and LinkedHashMap), SubArray using Map related Question | 3 | 1 |
| 5 | Dynamic Programming: Fib, min Steps to one, coin Changes, LCS, LIS, knapsack, Edit Distance, Graph basic, BFS, DFS, Dijkstra, MST(Prims), bipartite | 1 | 1 |

## 9. Learning Resources

**Text Books:**
- ✓ Cracking the Coding Interview author( Gayle Laakmann McDowell )
- ✓ Coding Interview Questions author(Narasimha Karumanchi)

**Reference Links:**
- https://google.com/
- NPTEL Data Structures And Algorithms, IIT Delhi

## 10. Weekly Timetable

| Day | Start Time | End Time | Duration (hrs) |
|---|---|---|---|
| Monday | 11:00 AM | 12:00 PM | 1 |
| Monday | 12:00 PM | 4:00 PM | 4 |

**Weekly Overview**

| Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|---|---|---|---|---|---|---|
| **11:00 AM - 12:00 PM** <br> ABC1404 (1hr) <br><br> **12:00 PM - 4:00 PM** <br> ABC1404 (4hr) | *No class* | *No class* | *No class* | *No class* | *No class* | *No class* |

## 11. Registered Students List

| Sr. No. | Roll No | Student Name | Unique Id |
|---|---|---|---|
| 1 | 220C2030001 | Aditya Goel | 240334 |
| 2 | 220C2030002 | Anisha Chhanpadia | 240335 |
| 3 | 220C2030003 | Dhruv Singla | 240336 |
| 4 | 220C2030004 | Dorjee Phinjo Sona | 240337 |
| 5 | 220C2030005 | EENA CHAUDHARY | 240338 |
| 6 | 220C2030006 | Eshaan Chandra | 240339 |
| 7 | 220C2030007 | Hardik Rustagi | 240340 |
| 8 | 220C2030008 | Harsh Gupta | 240341 |
| 9 | 220C2030009 | Jiya Gera | 240342 |
| 10 | 220C2030010 | Keshav Gupta | 240343 |

## 11. Registered Students List

## 19. Attendance Report

| Sr. No. | Roll No | Student Name | Attendance Out of(100) |
|---|---|---|---|
| 1 | 220C2030001 | Aditya Goel | 88 |
| 2 | 220C2030002 | Anisha Chhanpadia | 87 |
| 3 | 220C2030003 | Dhruv Singla | 93 |
| 4 | 220C2030004 | Dorjee Phinjo Sona | 88 |
| 5 | 220C2030005 | EENA CHAUDHARY | 77 |
| 6 | 220C2030006 | Eshaan Chandra | 88 |
| 7 | 220C2030007 | Hardik Rustagi | 99 |
| 8 | 220C2030008 | Harsh Gupta | 81 |
| 9 | 220C2030009 | Jiya Gera | 92 |
| 10 | 220C2030010 | Keshav Gupta | 93 |

## 18, 20 Detail of Marks in all components up to the End Semester

| Sr. No. | Roll No | Student Name | Quiz(30) Out | project(30) Out | End Term(40) Out | Total Marks(100.0) Out |
|---------|---------|--------------|--------------|-----------------|------------------|------------------------|
| 1 | 220C2030001 | Aditya Goel | 28 | 27 | 28 | 83 |
| 2 | 220C2030002 | Anisha Chhanpadia | 23 | 23 | 30 | 76 |
| 3 | 220C2030003 | Dhruv Singla | 25 | 22 | 33 | 80 |
| 4 | 220C2030004 | Dorjee Phinjo Sona | 24 | 30 | 20 | 74 |
| 5 | 220C2030005 | EENA CHAUDHARY | 21 | 24 | 20 | 65 |
| 6 | 220C2030006 | Eshaan Chandra | 26 | 29 | 26 | 81 |
| 7 | 220C2030007 | Hardik Rustagi | 24 | 27 | 20 | 71 |
| 8 | 220C2030008 | Harsh Gupta | 30 | 29 | 33 | 92 |
| 9 | 220C2030009 | Jiya Gera | 25 | 20 | 20 | 65 |
| 10 | 220C2030010 | Keshav Gupta | 25 | 20 | 40 | 85 |

## 12. CO Attainment Analysis

## CO Attainment Summary

| Course Outcomes | CO1 | CO2 | CO3 |
|---|---|---|---|
| Weights | 25.00% | 36.50% | 38.50% |
| No. of students scored greater than 3 | 3 | 3 | 2 |
| Percentage of students scored greater than 3 | 30.00% | 30.00% | 20.00% |
| Attainment Level | 1 | 1 | 1 |
| **Overall Course Attainment** | **1.0000** | | |



Percentage of Students Scored ≥ 3
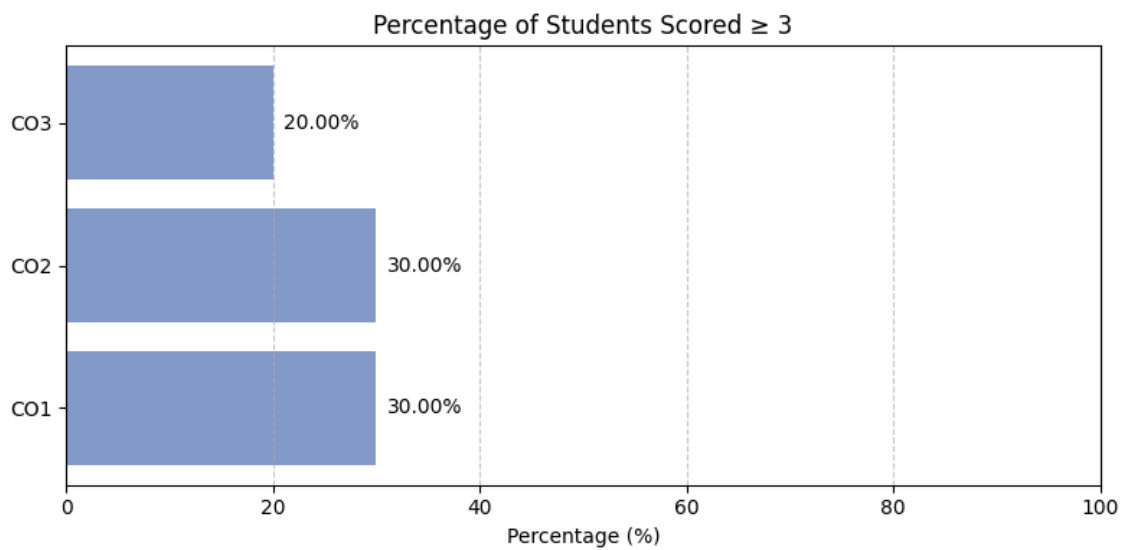
## Program Attainment

| Program Outcomes | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 |
|---|---|---|---|---|---|---|
| Program Attainment | 0.00 | 1.70 | 1.90 | 1.95 | 2.20 | 0.00 |



Program Attainment
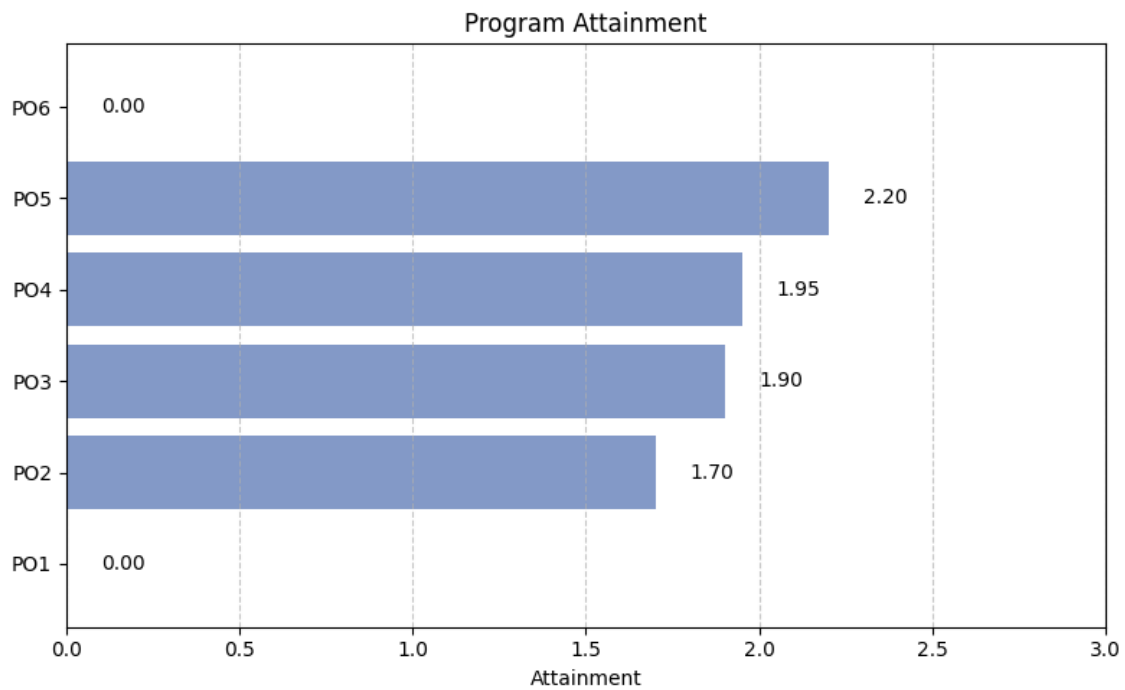
## Student-wise CO Achievement

| NAME | CO1 Score | CO2 Score | CO3 Score |
|------|-----------|-----------|-----------|
| Aditya Goel | 3 | 3 | 2 |
| Anisha Chhanpadia | 2 | 2 | 2 |
| Dhruv Singla | 2 | 2 | 2 |
| Dorjee Phinjo Sona | 2 | 2 | 1 |
| EENA CHAUDHARY | 1 | 1 | 1 |
| Eshaan Chandra | 2 | 3 | 1 |
| Hardik Rustagi | 2 | 2 | 1 |
| Harsh Gupta | 3 | 3 | 3 |
| Jiya Gera | 2 | 1 | 1 |
| Keshav Gupta | 3 | 2 | 3 |
| **Average** | **2.20** | **2.10** | **1.70** |



Course Outcome Attainment
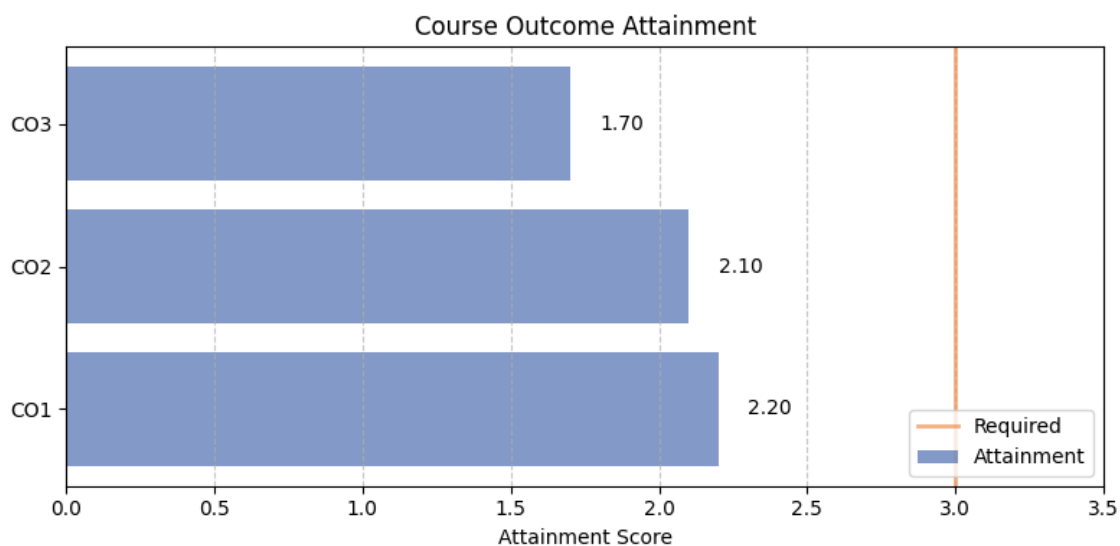
## 13. Student Learning Categories for Partial Semester

### Learner Categories Summary for Partial Semester

| Learner Category | Number of Students |
|---|---|
| Advanced Learners | 2 |
| Medium Learners | 7 |
| Slow Learners | 1 |

### Student Learning Classification for Partial Semester

| Student Name | Category |
|---|---|
| Aditya Goel | Advanced Learner |
| Eshaan Chandra | Advanced Learner |
| Anisha Chhanpadia | Medium Learner |
| Dhruv Singla | Medium Learner |
| Dorjee Phinjo Sona | Medium Learner |
| Hardik Rustagi | Medium Learner |
| Harsh Gupta | Medium Learner |
| Jiya Gera | Medium Learner |
| Keshav Gupta | Medium Learner |
| EENA CHAUDHARY | Slow Learner |

# 13. Student Learning Categories

## Learner Categories Summary

| Learner Category | Number of Students |
|---|---|
| Advanced Learners | 1 |
| Medium Learners | 8 |
| Slow Learners | 1 |

## Student Learning Classification

| Student Name | Category |
|---|---|
| Harsh Gupta | Advanced Learner |
| Aditya Goel | Medium Learner |
| Anisha Chhanpadia | Medium Learner |
| Dhruv Singla | Medium Learner |
| Dorjee Phinjo Sona | Medium Learner |
| Eshaan Chandra | Medium Learner |
| Hardik Rustagi | Medium Learner |
| Jiya Gera | Medium Learner |
| Keshav Gupta | Medium Learner |
| EENA CHAUDHARY | Slow Learner |

## 14. Actions taken for weak students

- we beat them

## 15. Student Feedback

**Quantitative Feedback:**

Average Rating: 4.37/5

**Qualitative Feedback:**

course was good

## 16. Faculty Course Review

lol this field never was suppose to even work how did it work good question!!!!!

# SCHOOL OF ENGINEERING & TECHNOLOGY

# COURSE FILE

Program: Computer Science Engineering
Course Code: CSE4708
Course Title: Cyber Forensics
Module Semester: 7th Sem
Session: 2021-2022

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| S. No. | Topics |
|--------|--------|
| 1. | Course Details: Course-Code; Course Title; Semester/Term/Module; Year |
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# 1.    Course Details

- Course Code: CSE4708
- Course Title: Cyber Forensics
- **Module/Semester: 7th Sem**
- Session: 2021-2022

## 2.  Vision, Mission of the University

**Vision**

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## 3. Graduate Attributes

- Acquire and apply practical understanding of discipline knowledge.

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- Exhibit problem solving, critical thinking skills and investigative capability to address real world problems.

- Manifest leadership qualities and work effectively in teams across globally diverse environments.

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* Creating an inclusive and diverse learning environment that fosters creativity, critical thinking, and ethical values.

* Collaborating with industry, government, and other institutions to address complex societal challenges and promote sustainable development.

# 5. PEOs and POs & PSOs of the Program

Program Educational Objectives (PEO):

PEO 1: Identify real-life problems and develop creative and innovative hardware/software-based solutions.

PEO 2: Achieve professional development through self-learning to adapt to the technological changes in the ever changing field of computing.

PEO 3: Engage in life-long learning of computer engineering technologies, critical thinking and continuous ingenuity and apply them in real-life applications.

PEO 4: Accomplish leadership roles by imbibing ethics and professionalism with emphasis on sustainable development of the society.


Program Outcomes (PO):

PO1: Apply the foundational concepts of mathematics, science and computer engineering to find novel solutions for complex real-life engineering problems.

PO2: Identify, formulate, review literature and analyze complex computer engineering problems reaching substantiated conclusions and derive a coherent logic that can be implemented by computers.

PO3: Design analytical and computational models for solving complex engineering problems giving due consideration to issues related to public health and safety, cultural and societal constraints, and environmental concerns.

PO4: Use research-based knowledge, methods, tools and techniques for data collection, designing digital computing systems, analyzing and interpreting the results to provide substantiated conclusions.

PO5: Use appropriate tools to model complex computer engineering problems through identification of the limitations and creating solutions to predict the real-world phenomena.

PO6: Use appropriate contextual knowledge of computer engineering to review and assess societal, health, legal, cultural, safety and contemporary issues and rationalize the ensuing responsibilities towards the society.

PO7: Adopt computer engineering practices in congruence with societal need, understand the working practices and its impact on natural resources for sustainable development.

PO8: Use ethical principles to pursue excellence in developing computer engineering systems and behave appropriately to develop a reliable and trustworthy relationship with others.

PO9: Function effectively as a reliable and responsible individual, and as a member or leader in diverse computer engineering teams, and in multidisciplinary settings, thereby placing team goals ahead of individual interests.

PO10: Communicate effectively by capturing the desirable computer system requirements for preparation of specification documents, write clear and concise report such as laboratory files, research papers, thesis, and presentation materials.

PO11: Demonstrate knowledge of computer engineering and management principles for the completion of individual or group projects in multidisciplinary environments.

PO12: Recognize the evolving technological changes and engage as an independent and life-long learner

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in both computing and non-computing fields.

Program Specific Outcomes (PSO):

PSO1: Identify applicable tools and techniques related to data science practice such as data collection, cleaning, analysis, modelling, evaluation and result interpretation and apply them for deriving hidden and meaningful patterns for appropriate actionable insights.

PSO2: Develop intelligent systems for various real-life domains like healthcare, transportation, finance etc. using Artificial Intelligence methodologies.

PSO3: Understand the foundational concepts and techniques to protect computing systems against constantly evolving cybersecurity threats and analyze security breaches and violations of cyber systems and networks to provide appropriate solutions.

PSO4: Design effective security systems to mitigate risks, threats and vulnerabilities for protecting the organizations against cyber threats.

## 6. Course Description and its objectives

The goal of this course "Cyber Forensics" is to understand the principles and practice of security attacks and fundamentals of security protocols and its defense. It covers operating system security, database security, network-based security threats and their social and legal aspect. Cyber Forensics is a core elective course in computer science and engineering and computer science undergraduate program. This course focuses on to understand Computer Forensics, Computing Investigations, Enforcement Agency Investigations. This course will provide overview of types of computer forensics, data recovery, electronic evidence, threats, surveillance.

# 7. Course Outcomes and CO-PO Mapping

**Course Outcomes:**

CO1: Understand a brief overview of Computer Forensics Fundamentals.

CO2: Identify the features of Data Recovery.

CO3: Understanding of Reconstructing Past Events.

CO4: Work with cyber forensics tools.

**CO/PO Mapping:**

| Course Outcomes (CO) | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 | PSO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| CO1 | 1 | 2 | | | 1 | 2 | | | 1 | 3 | | | 1 | 3 | | |
| CO2 | | 1 | 2 | | | 1 | 2 | | | 1 | 3 | | | 1 | 3 | |
| CO3 | | | 1 | 2 | | | 1 | 2 | | | 1 | 3 | | | 1 | 3 |
| CO4 | | | | 1 | 2 | | | 1 | 2 | | | 1 | 3 | | | 1 |

## 8. Course Syllabus

| Sr. No. | Content | CO | Sessions |
|---------|---------|-----|----------|
| 1 | Computer Forensics Fundamentals. | CO1 | 3 |
| 2 | Types of Computer Forensics Technology | CO1 | 3 |
| 3 | Types of Vendor and Computer Forensics Services. | CO1 | 2 |
| 4 | Data Recovery | CO2 | 2 |
| 5 | Evidence Collection and Data Seizure | CO3 | 2 |
| 6 | Duplication and Preservation of Digital Evidence | CO2 | 2 |
| 7 | Computer Image Verification and Authentication. | CO3 | 2 |
| 8 | Discover of Electronic Evidence | CO3 | 2 |
| 9 | Identification of Data | CO3 | 3 |
| 10 | Reconstructing Past Events | CO3 | 2 |
| 11 | Networks. | CO2 | 1 |
| 12 | Fighting against Macro Threats | CO3 | 2 |
| 13 | Information Warfare Arsenal | CO4 | 2 |
| 14 | Tactics of the Military | CO3 | 2 |
| 15 | Tactics of Terrorist and Rogues | CO4 | 2 |
| 16 | Tactics of Private Companies. | CO3 | 2 |
| 17 | The Future â€" Arsenal | CO4 | 2 |
| 18 | Surveillance Tools | CO4 | 1 |
| 19 | Victims and Refugees | CO4 | 2 |
| 20 | Advanced Computer Forensics. | CO4 | 2 |
| 21 | Payload, Key Management | CO4 | 2 |

# 9. Learning Resources

**Text Books:**

✓ Computer Forensics by John R. Vacca

**Reference Links:**

- Windows Forensics by Chad Steel
- Cybercrime and Society by Majid Yar
- Software Forensics by Robert M Slade

## 10. Weekly Timetable

| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| 9:15-10:10 | Cyber Forensics (CSE4708) | | | | |
| 10:15-11:10 | | Cyber Forensics (CSE4708) | | | |
| 11:15-12:10 | | | Cyber Forensics (CSE4708) | | |
| 12:15-13:10 | | | | Cyber Forensics (CSE4708) | |
| 13:15-14:10 | | | | | Cyber Forensics (CSE4708) |
| 14:15-15:10 | | | | Cyber Forensics (CSE4708) | |
| 15:15-16:10 | | | Cyber Forensics (CSE4708) | | |
| 16:15-17:10 | | Cyber Forensics (CSE4708) | | | |
| 17:15-18:10 | Cyber Forensics (CSE4708) | | | | |

## 11. Registered Students List

| Sr. No. | Roll No | Student Name | Unique Id |
|---------|---------|--------------|-----------|
| 1 | 220C2030001 | Aditya  Goel | 240334 |
| 2 | 220C2030002 | Anisha  Chhanpadia | 240335 |
| 3 | 220C2030003 | Dhruv  Singla | 240336 |
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| 9 | 220C2030009 | Jiya  Gera | 240342 |
| 10 | 220C2030010 | Keshav  Gupta | 240343 |
| 11 | 220C2030011 | Luvisha  Verma | 240345 |
| 12 | 220C2030012 | Mehal  Raghav | 240346 |
| 13 | 220C2030013 | Neha Raju Shinde | 240347 |
| 14 | 220C2030014 | Priya  Chadda | 240348 |
| 15 | 220C2030015 | Purnendu  Vashishtha | 240349 |
| 16 | 220C2030016 | Sagar  Bista | 240350 |
| 17 | 220C2030017 | Shoryaveer  Singh | 240351 |
| 18 | 220C2030018 | Yash  Garg | 240352 |
| 19 | 220C2030019 | Sanchi  Narang | 240870 |
| 20 | 220C2030020 | Cheshtha  Narang | 240871 |
| 21 | 220C2030021 | Nishtha  Arora | 240909 |
| 22 | 220C2030022 | Astha  Jaiswal | 240794 |
| 23 | 220C2030023 | Kshitij  Khera | 240333 |
| 24 | 220C2030024 | Hitansh  Goel | 240943 |
| 25 | 220C2030025 | Sneha Singh | 240963 |

## 19. Attendance Report

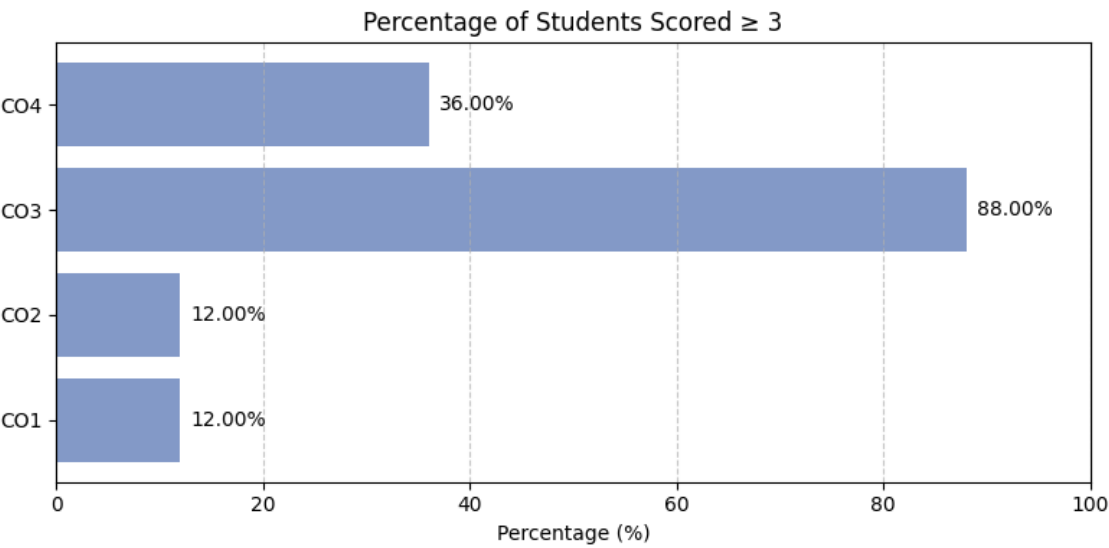| Sr. No. | Roll No | Student Name | Attendance Out of(100) |
|---|---|---|---|
| 1 | 220C2030001 | Aditya  Goel | 75.00 |
| 2 | 220C2030002 | Anisha  Chhanpadia | 85.19 |
| 3 | 220C2030003 | Dhruv  Singla | 71.43 |
| 4 | 220C2030004 | Dorjee Phinjo Sona | 89.29 |
| 5 | 220C2030005 | EENA  CHAUDHARY | 100.00 |
| 6 | 220C2030006 | Eshaan  Chandra | 85.71 |
| 7 | 220C2030007 | Hardik  Rustagi | 78.57 |
| 8 | 220C2030008 | Harsh  Gupta | 82.14 |
| 9 | 220C2030009 | Jiya  Gera | 92.86 |
| 10 | 220C2030010 | Keshav  Gupta | 75.00 |
| 11 | 220C2030011 | Luvisha  Verma | 92.86 |
| 12 | 220C2030012 | Mehal  Raghav | 81.48 |
| 13 | 220C2030013 | Neha Raju Shinde | 89.29 |
| 14 | 220C2030014 | Priya  Chadda | 85.19 |
| 15 | 220C2030015 | Purnendu  Vashishtha | 96.43 |
| 16 | 220C2030016 | Sagar  Bista | 96.43 |
| 17 | 220C2030017 | Shoryaveer  Singh | 60.71 |
| 18 | 220C2030018 | Yash  Garg | 71.43 |
| 19 | 220C2030019 | Sanchi  Narang | 96.43 |
| 20 | 220C2030020 | Cheshtha  Narang | 96.43 |
| 21 | 220C2030021 | Nishtha  Arora | 100.00 |
| 22 | 220C2030022 | Astha  Jaiswal | 42.86 |
| 23 | 220C2030023 | Kshitij  Khera | 78.57 |
| 24 | 220C2030024 | Hitansh  Goel | 82.14 |
| 25 | 220C2030025 | Sneha  Singh | 82.14 |

## 18, 20 Detail of Marks in all components up to the End Semester

| Sr. No. | Roll No | Student Name | Assignment Out | End term examination Out | Group Presentation Out | Individual Class Participation Out | Mid Term Exam Out | Role Play Out | Total Marks(100.0) Out |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 220C2030001 | Aditya  Goel | 8.5 | 0.0 | 9.0 | 0.0 | 6.5 | 8.0 | 32.00 |
| 2 | 220C2030002 | Anisha  Chhanpadia | 8.5 | 21.0 | 9.0 | 9.0 | 10.5 | 8.0 | 66.00 |
| 3 | 220C2030003 | Dhruv  Singla | 8.5 | 24.0 | 9.0 | 1.0 | 6.0 | 8.0 | 56.50 |
| 4 | 220C2030004 | Dorjee Phinjo Sona | 8.5 | 18.5 | 9.0 | 7.0 | 3.0 | 8.0 | 54.00 |
| 5 | 220C2030005 | EENA CHAUDHARY | 9.0 | 29.0 | 9.0 | 8.5 | 8.0 | 8.0 | 71.50 |
| 6 | 220C2030006 | Eshaan  Chandra | 7.5 | 26.0 | 8.5 | 6.0 | 8.0 | 7.5 | 63.50 |
| 7 | 220C2030007 | Hardik  Rustagi | 9.0 | 21.0 | 8.5 | 7.5 | 4.5 | 7.5 | 58.00 |
| 8 | 220C2030008 | Harsh  Gupta | 8.0 | 20.0 | 7.5 | 0.0 | 7.5 | 8.0 | 51.00 |
| 9 | 220C2030009 | Jiya  Gera | 8.5 | 26.5 | 8.5 | 7.5 | 8.5 | 8.0 | 67.50 |
| 10 | 220C2030010 | Keshav  Gupta | 7.5 | 5.0 | 8.5 | 0.0 | 4.0 | 8.0 | 33.00 |
| 11 | 220C2030011 | Luvisha  Verma | 8.0 | 20.0 | 7.5 | 9.5 | 7.5 | 7.0 | 59.50 |
| 12 | 220C2030012 | Mehal  Raghav | 8.0 | 30.0 | 7.5 | 3.0 | 4.0 | 7.0 | 59.50 |
| 13 | 220C2030013 | Neha Raju Shinde | 8.5 | 20.5 | 8.5 | 6.0 | 6.0 | 7.5 | 57.00 |
| 14 | 220C2030014 | Priya  Chadda | 9.0 | 34.0 | 8.5 | 6.5 | 16.0 | 8.0 | 82.00 |
| 15 | 220C2030015 | Purnendu  Vashishtha | 8.0 | 11.5 | 8.0 | 6.5 | 8.0 | 7.0 | 49.00 |
| 16 | 220C2030016 | Sagar  Bista | 9.5 | 23.0 | 8.0 | 7.5 | 12.0 | 7.0 | 67.00 |
| 17 | 220C2030017 | Shoryaveer  Singh | 8.0 | 21.5 | 0.0 | 1.0 | 2.5 | 7.0 | 40.00 |
| 18 | 220C2030018 | Yash  Garg | 8.0 | 5.0 | 7.0 | 0.0 | 2.5 | 8.0 | 30.50 |
| 19 | 220C2030019 | Sanchi  Narang | 9.5 | 35.0 | 8.0 | 9.5 | 17.0 | 8.0 | 87.00 |
| 20 | 220C2030020 | Cheshtha  Narang | 7.5 | 33.0 | 9.0 | 9.5 | 8.0 | 8.0 | 75.00 |
| 21 | 220C2030021 | Nishtha  Arora | 8.5 | 18.5 | 7.5 | 8.5 | 17.5 | 8.0 | 68.50 |
| 22 | 220C2030022 | Astha  Jaiswal | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 |
| 23 | 220C2030023 | Kshitij  Khera | 9.5 | 15.5 | 7.5 | 4.5 | 8.5 | 7.0 | 52.50 |
| 24 | 220C2030024 | Hitansh  Goel | 8.0 | 11.5 | 7.5 | 4.0 | 3.5 | 8.0 | 42.50 |
| 25 | 220C2030025 | Sneha Singh | 8.0 | 26.5 | 8.0 | 5.5 | 9.5 | 8.0 | 65.50 |

## 12. CO Attainment Analysis

### CO Attainment Summary

|  | CO1 | CO2 | CO3 |  |
|---|---|---|---|---|
|  | 30.00% | 50.00% | 10.00% |  |
| greater than 3 | 3 | 3 | 22 |  |
| scored greater than 3 | 12.00% | 12.00% | 88.00% |  |
|  | 1 | 1 | 3 |  |
| ment | 1.5000 |  |  |  |

Percentage of Students Scored ≥ 3

CO4 — 36.00%

CO3 — 88.00%

CO2 — 12.00%

CO1 — 12.00%

Percentage (%)

## Program Attainment

| Program Outcomes | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 | PSO4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Program Attainment | 1.48 | 1.56 | 2.08 | 2.52 | 1.80 | 1.56 | 2.08 | 2.52 | 1.80 | 1.54 | 1.99 | 2.59 | 1.84 | 1.54 | 1.99 | 2.59 |



Program Attainment
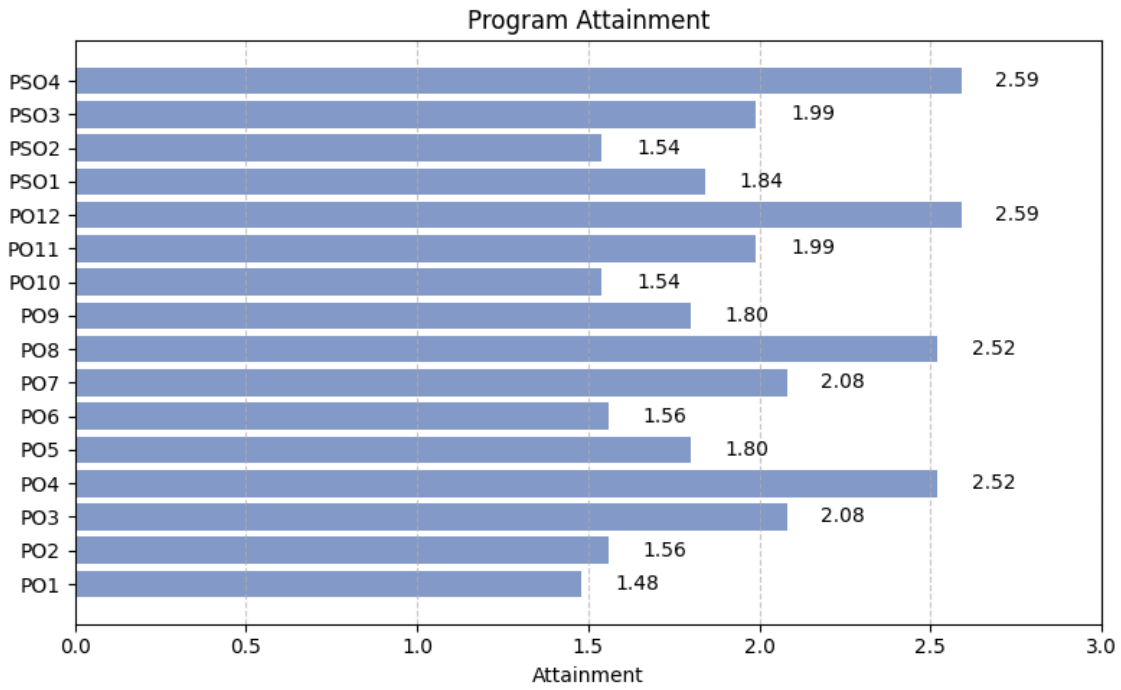
## Student-wise CO Achievement

| NAME | CO1 Score | CO2 Score | CO3 Score | CO4 Score |
|---|---|---|---|---|
| Aditya  Goel | 1 | 1 | 3 | 1 |
| Anisha  Chhanpadia | 2 | 2 | 3 | 3 |
| Dhruv  Singla | 1 | 2 | 3 | 1 |
| Dorjee Phinjo Sona | 1 | 1 | 3 | 2 |
| EENA  CHAUDHARY | 2 | 2 | 3 | 3 |
| Eshaan  Chandra | 1 | 2 | 3 | 2 |
| Hardik  Rustagi | 1 | 2 | 3 | 3 |
| Harsh  Gupta | 1 | 2 | 3 | 1 |
| Jiya  Gera | 2 | 2 | 3 | 3 |
| Keshav  Gupta | 1 | 1 | 3 | 1 |
| Luvisha  Verma | 1 | 1 | 3 | 3 |
| Mehal  Raghav | 1 | 2 | 3 | 1 |
| Neha Raju Shinde | 1 | 2 | 3 | 2 |
| Priya  Chadda | 3 | 3 | 3 | 2 |
| Purnendu  Vashishtha | 1 | 1 | 3 | 2 |
| Sagar  Bista | 2 | 2 | 3 | 3 |
| Shoryaveer  Singh | 1 | 2 | 1 | 1 |
| Yash  Garg | 1 | 1 | 2 | 1 |
| Sanchi  Narang | 3 | 3 | 3 | 3 |
| Cheshtha  Narang | 1 | 3 | 3 | 3 |
| Nishtha  Arora | 3 | 1 | 3 | 3 |
| Astha  Jaiswal | 1 | 1 | 1 | 1 |
| Kshitij  Khera | 2 | 1 | 3 | 1 |
| Hitansh  Goel | 1 | 1 | 3 | 1 |
| Sneha Singh | 2 | 2 | 3 | 2 |
| **Average** | **1.48** | **1.72** | **2.80** | **1.96** |
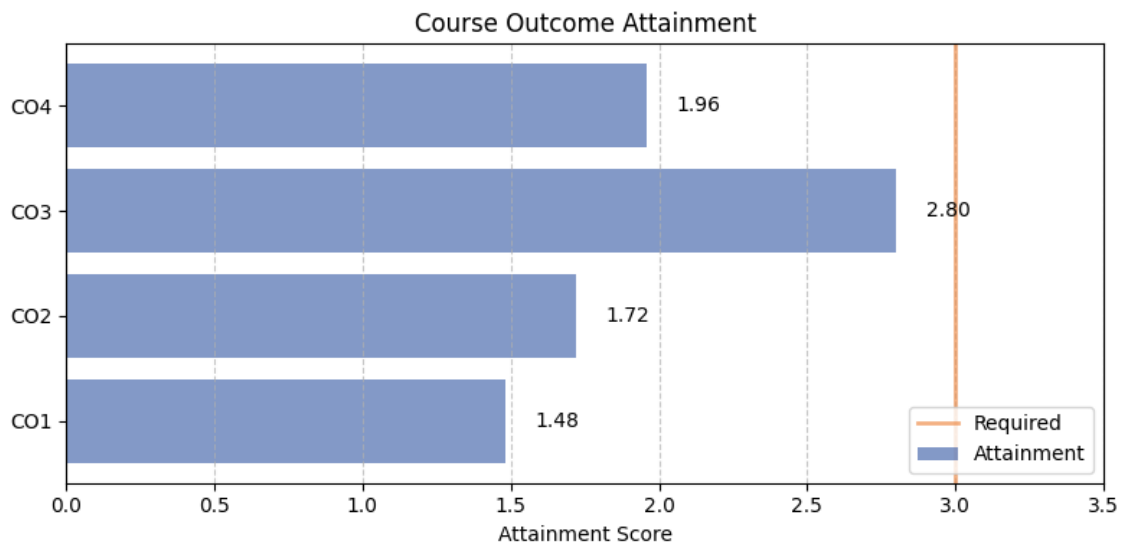


Course Outcome Attainment

## 13. Student Learning Categories

### Learner Categories Summary

| Learner Category | Number of Students |
|---|---|
| Advanced Learners | 1 |
| Medium Learners | 23 |
| Slow Learners | 1 |

### Student Learning Classification

| Student Name | Category | CO1 | CO2 | CO3 | CO4 |
|---|---|---|---|---|---|
| Sanchi  Narang | Advanced Learner | 3 | 3 | 3 | 3 |
| Aditya  Goel | Medium Learner | 1 | 1 | 3 | 1 |
| Anisha  Chhanpadia | Medium Learner | 2 | 2 | 3 | 3 |
| Dhruv  Singla | Medium Learner | 1 | 2 | 3 | 1 |
| Dorjee Phinjo Sona | Medium Learner | 1 | 1 | 3 | 2 |
| EENA  CHAUDHARY | Medium Learner | 2 | 2 | 3 | 3 |
| Eshaan  Chandra | Medium Learner | 1 | 2 | 3 | 2 |
| Hardik  Rustagi | Medium Learner | 1 | 2 | 3 | 3 |
| Harsh  Gupta | Medium Learner | 1 | 2 | 3 | 1 |
| Jiya  Gera | Medium Learner | 2 | 2 | 3 | 3 |
| Keshav  Gupta | Medium Learner | 1 | 1 | 3 | 1 |
| Luvisha  Verma | Medium Learner | 1 | 1 | 3 | 3 |
| Mehal  Raghav | Medium Learner | 1 | 2 | 3 | 1 |
| Neha Raju Shinde | Medium Learner | 1 | 2 | 3 | 2 |
| Priya  Chadda | Medium Learner | 3 | 3 | 3 | 2 |
| Purnendu  Vashishtha | Medium Learner | 1 | 1 | 3 | 2 |
| Sagar  Bista | Medium Learner | 2 | 2 | 3 | 3 |
| Shoryaveer  Singh | Medium Learner | 1 | 2 | 1 | 1 |
| Yash  Garg | Medium Learner | 1 | 1 | 2 | 1 |
| Cheshtha  Narang | Medium Learner | 1 | 3 | 3 | 3 |
| Nishtha  Arora | Medium Learner | 3 | 1 | 3 | 3 |
| Kshitij  Khera | Medium Learner | 2 | 1 | 3 | 1 |
| Hitansh  Goel | Medium Learner | 1 | 1 | 3 | 1 |
| Sneha Singh | Medium Learner | 2 | 2 | 3 | 2 |
| Astha  Jaiswal | Slow Learner | 1 | 1 | 1 | 1 |

## 14. Actions taken for weak students

- we beat them
- we kill some as well
- some kill themselves

## 15. Student Feedback

**Quantitative Feedback:**

Average Rating: 5.00/5

**Qualitative Feedback:**

lol all good

## 16. Faculty Course Review

all good but need better students

# PRATYUT

Plot Number 15, Shanti Nagar, P.O. Sarojini Nagar, Lucknow, Uttar Pradesh - 226008

📞 9695570887  ✉ pratyut987@gmail.com  in linkedin.com/in/pratyut-/  ⭘ github.com/PratyutCS

## Education

**BML Munjal University, Gurgaon**                          **November 2021 – September 2025**
*Bachelor of Technology in Computer Science And Engineering*                    *Current CGPA: 7.54/10*

**City Montessori School, Lucknow**                          **April 2017 – March 2021**
*ISC/ICSE*                                                  *Percentage: 94.75%/91.87%*

## Relevant Coursework

- Attack and Defence
- Data Structures
- Computer Networks
- Database Management
- Security Audit
- OOP using C++
- Blockchain
- Operating System

## Experience

**IIT Bhilai**                                                        **January 2025**
*Intern*                                                          *Bhilai, Chhattisgarh*

- Implemented parallel computing solutions utilizing **CPU/GPU multi-threading** in **C** to optimize detection of weak **2048-bit RSA** keys vulnerable to factorization attacks.
- Developed and optimized **C** code for concurrent processing across multiple cores, contributing to research methodology for identifying cryptographic vulnerabilities in **RSA** key generation and validation processes.

**BML Munjal University**                                      **December 2022 – July 2024**
*Software Developer*                                                  *Kapriwas, Haryana*

- Spearheaded development of database management system using **EJS, Node/Express, MongoDB**, enabling **28%** paperwork reduction across 11 departments and Designed event report system using **Flutter, Node.js, MongoDB & JWT**, achieving **95%** faster report generation
- Led IQAC full-stack webpage development, reducing file search time by **86%** and implemented data quality measures, reducing workload by **60%**

## Projects

**Blockchain** | *PYTHON*                                                        Github

- Developed a fully **decentralized blockchain** implementation for cryptocurrencies from scratch, utilizing the **latest cryptography protocols**.
- Employed **peer-to-peer technology** and networks to enhance communication efficiency, achieving a 4% improvement in mining time through **multi-threading on the CPU**.
- Applied robust error handling mechanisms, enabling automatic transitions.

**BeeHive** | *RUST, REACT*                                                      Github

- Developed and implemented a comprehensive **Windows Registry Hive analysis tool** using **Rust and React.js**, enabling efficient comparison and visualization of registry files through an intuitive interface for **forensic analysis**.
- Designed and implemented registry comparison functionality with optimized diff algorithms, enabling officers to efficiently analyze and identify changes between similar registry hives through an interactive dashboard interface.

**Invisible Image Watermarking** | *NODE.JS, HTML, CSS, EJS, PYTHON, JAVASCRIPT*        Github

- Engineered a full-stack web-page using **Node.js, Express.js, HTML, CSS, EJS, Python, and JavaScript** to implement spatial and DCT watermarking for videos and images.
- Used **system commands** for execution of **Python scripts** for LSB and DCT watermarking through JavaScript, achieving a 67% increase in code efficiency and a 27% reduction in embedding time with automated client-side updates.

## ACHIEVEMENTS

. 50+ Problem solved in LeetCode
. SIH college round qualifiers 2022
. ICPC regional qualifier
. Certified Microsoft Cybersecurity Analyst

## Technical Skills

**Languages**: Python, Java, C++, HTML/CSS, JavaScript, Embedded C, Rust, GoLang, Dart, Bash
**Developer Tools**: VS Code, Excel, Android Studio, Git, VMWare, AWS, Azure, MongoDB, Postman
**Technologies/Frameworks**: Linux, Jenkins, GitHub, Flutter, Matplotlib, Seaborn, Numpy, Pandas, React, Express, puppeteer, FFmpeg, OpenCV, Nmap, Metasploit