CSE400 – Fundamentals of Probability in Computing

Lecture 3: Introduction to Probability Theory

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Lecture Overview

This lecture introduces the course structure, instructional philosophy, logistics, evaluation scheme, and project framework for CSE400.

Outline

- CSE400: General Course Information
- Why should we learn CSE400?
- Engineering Applications

1 CSE400: General Course Information

1.1 Instructor

- **Name**: Dr. Dhaval Patel
- **Role**: Instructor
- **Office**: Faculty Office (Room 210)
- **Faculty Profile**: `https://ahduni.edu.in/seas/people/faculty/dhaval-patel`
- **Personal Webpage**: `http://profpatel.in/`
- **Email**: dhaval.patel@ahduni.edu.in

1.2 Areas of Interest

- XG Networks
- Applied ML / DL / RL / AutoML
- Intelligent Transportation Systems
- Life Sciences
- Behaviour Modelling using AI

1.3 Teaching Assistants

- Deep Patel (BTech-CSE, 3rd Year)
- Prapti Patel (BTech-CSE, 4th Year)
- Raj Koticha (BTech-CSE, 4th Year)
- Ritu Patel (BTech-CSE, 4th Year)
- Rushi Moliya (BTech-CSE, 4th Year)
- Ura Modi (BTech-CSE, 3rd Year)

2 Active Learning and Class Discussion

2.1 Course Website

- Section 1: `https://campuswire.com/c/C20541104/`
- Section 2: `https://campuswire.com/c/G766840CE/`

2.2 Campuswire Platform

- Anonymous participation to build confidence
- Collaborative and active learning
- Real-time feedback through polling
- Direct communication with Instructor and TAs via DM

3 Schedule

3.1 Lecture Sessions

- Section 1: 9:30 AM – 11:00 AM (Tuesday, Thursday), GICT Room 136
- Section 2: 1:00 PM – 2:30 PM (Tuesday, Thursday), GICT Room 137

3.2 TA Hours

- Mode: In-person / Online
- Timings: To be finalized (announcement to be posted)

4 Connecting with the Instructor

- Contact hours available 24×7 through Campuswire
- Best practice: Post queries on Campuswire
- Direct messages allowed for private student–instructor discussions
- External engagement: UGRP-8 (2026), offline projects, counseling

5 Why Should We Learn CSE400?

- Example motivation: Daily life conversations

6 Engineering Applications

- Speech Recognition
- System Radar Systems
- Communication Networks

7 Evaluation Structure

7.1 Project Component

- Weightage: 30%
- Total milestones: M1 – M6
- One submission per group per milestone

7.2 Project Milestones

1. Concept Evolution Maps
2. Mathematical Modelling
3. Coding: Simulation and Computation
4. Inference and Randomized Algorithms
5. Randomized Algorithm Application
6. Derivation of Bounds, Analysis, and Final Compilation

8 Scribe Requirement

- Lecture scribes and project scribes
- Bi-weekly submissions
- Minimum length: 8–10 pages
- Focus on process, decisions, constraints, alternatives, and evidence

End of Lecture

Q&A session and open discussion.