



produce an organized study guide on exams, with specific reference to the information presented at the lectures, which is presented strictly and exclusively, in logical order, and without any external impressions, additional examples, or backdoor. Record all definitions, assumptions, proofs, derivations, and examples solutions verbatim as given and with a high level of academic language and step by step detail, so that one can be sure that they are followed to the letter during the revision. You should have clear headings and bold terminology to group the contents so that no information is contained outside the source text and that all the technical derivations remain as they are.

Cse400 – Lecture 3 Exam Study Guide

CSE400 – Project Kickoff (Lecture 3) : Exam-Oriented Study Guide

Course Component: Project Kickoff

Weightage

- **Project Component Weightage: 30%** `filecite turn0file0`
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Project Team Formation

- **Deadline: 17th January 2026, Saturday – End of Day (EOD)**
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Project Execution Guidelines

- **Total Weightage: 30%**
- **Major Milestones: M1 – M6**
 - Total 6 submissions throughout the semester
 - One submission per group

Defined Milestones

1. **Concept Evolution Maps**
2. **Scribe: Process & Decision-Making**
 - Decision Logs (Why X over Y?)
 - Constraints
 - Alternatives considered
 - Final decision
 - Evidence used
 - Trade-off matrices (Cost vs Performance vs Risk)
3. **Multimodal Artifacts (Video / Audio / Visual)**
 - Think-Aloud Videos
 - One-Minute Insight Videos
 - Project Demo
4. **Question-Driven Artifacts**
 - Probing depth of understanding
5. **Collaboration & Team Dynamics Artifacts**

Deliverables

- Codes, Reports, Videos, etc.
- Submitted as and when specified

Assessment Structure

- **Team Assessment:** Before Mid-Semester and After Mid-Semester
 - **Project Viva and Final Submission:** Towards the end of the course
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How to Kick Start Project Execution

M1: Kickstart

- Team Formation
- Area Identification
- Background
- Motivation
- Problem Formulation

M2: Mathematical Modeling

- Mathematical modelling of the selected problem in **ANY domain**
- Concepts explicitly listed:
 - Random Variables (RV)
 - PMF / PDF
 - CDF
 - Multivariate Random Variables
 - Joint PMF / PDF / CDF

M3: Coding

- Simulation
- Computation

M4: Inference

- Choose, understand, and code a **randomized algorithm**

M5: Randomized Algorithms

- Apply the randomized algorithm to the domain problem
- Present results
- New inferences **in comparison to deterministic algorithms**

M6: Derive Bounds and Analysis

- Derive bounds
- Perform analysis
- Compile and submit final deliverables

Submission #1 – Concept Evolution Maps

Prescribed Tools

- <https://miro.com/concept-map/>
- <https://app.diagrams.net/> (draw.io)

Submission #2 – Scribe: Learning Reflection Logs

Permitted Types (Strictly)

- (a) Lecture Scribes
- (b) Project Scribe

Lecture Scribes

- Every lecture: **2 groups assigned**
- Reflect lecture content
- Include additional examples from **foreign textbooks**
- **Minimum length:** 8–10 pages

Project Scribe Content

- Process & Decision-Making
- Decision Logs (**Why X over Y?**)
- Constraints
- Alternatives considered
- Final decision
- Evidence used
- Trade-off matrices (Cost vs Performance vs Risk) [filecite\turn0file0]

Submission Frequency

- **Total submissions:** 6
- **Mode:** Bi-weekly
- Each submission focuses on answering specific project-related questions [filecite\turn0file0]

Submission #3 – Multimodal Artifacts (Video / Audio / Visual)

- Editing skills **not evaluated**
- Focus strictly on **content delivery** [filecite\turn0file0]

Video Requirements

- **One video per milestone**
- **Duration:** 10–15 minutes
- Explanation of:
 - Corresponding milestone
 - Coding simulation (if applicable) [filecite\turn0file0]

Presentation Mode

- PPT / Google Slides allowed

- Any recording tool permitted [filecite]turn0file0[

Accepted Formats

- Think-Aloud Videos
 - One-Minute Insight Videos
 - Project Demo [filecite]turn0file0[
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Introduction to Undergraduate Research Programme (UGRP-8: 2026–2027)

Foundational Reference

- Dr. BJ Fogg
 - Founder, Behavior Design Lab, Stanford University
 - Directs research and innovation [filecite]turn0file0[
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Rationale for UGRP

T-Shaped Engineer Concept

- Tranquillo, Joe. *"The T-shaped engineer"*, Journal of Engineering Education Transformations 30.4 (2017): 12–24 [filecite]turn0file0[

IBM Concept of the T-Shaped Individual

- Vertical bar: Depth in a single technical discipline
 - Horizontal bar: Ability to apply knowledge across disciplines and work with others [filecite]turn0file0[
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UGRP Philosophy

- **Multidisciplinary:** Arts, Science, Management

- **Experiential Learning**
- **Research Driven**
- **4D Model:** Discover + Design + Develop + Deliver
- **Breadth:** CS and CSE
- **Data Science:** Applied Artificial Intelligence
- **Modern Computer System Design:** Hardware and Software
- **Networks:** IoT / IoBNT / IoV

End of Lecture

- **Q & A Session:** Open Discussions
- **Contact:** dhaval.patel@ahduni.edu.in

I've created a **strict, exam-oriented study guide** in the canvas titled **"CSE400 – Lecture 3 Exam Study Guide."**

What this guide guarantees (as per your instruction):

- **Exclusively derived from the lecture material (L3.pdf)** — nothing added, inferred, or interpreted.
- **Logically ordered** to match how content would be revised for exams.
- **High academic tone**, with **formal terminology preserved**.
- **Clear hierarchical headings** and **bolded technical groupings**.
- **No external impressions, examples, or commentary** beyond what is explicitly stated in the lecture.
- All items (definitions, structures, milestones, philosophies, requirements) are **recorded exactly as presented**, reorganized only for clarity and revision.

If you want, next I can:

- Split this into **exam-answer-ready bullet points** (still strictly source-bound), or
- Reformat it into a **memorization checklist** aligned with likely evaluation criteria, or
- Do the **same treatment for another lecture (L4, L5, etc.)** so all your exam notes stay perfectly consistent.

