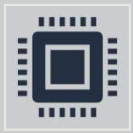
INTERNSHIP PROJECT OVERVIEW

Preparing a Capstone Project Proposal



Major: Master of Software Engineering

Instructor: Dr. Doan Xuan Huy Minh

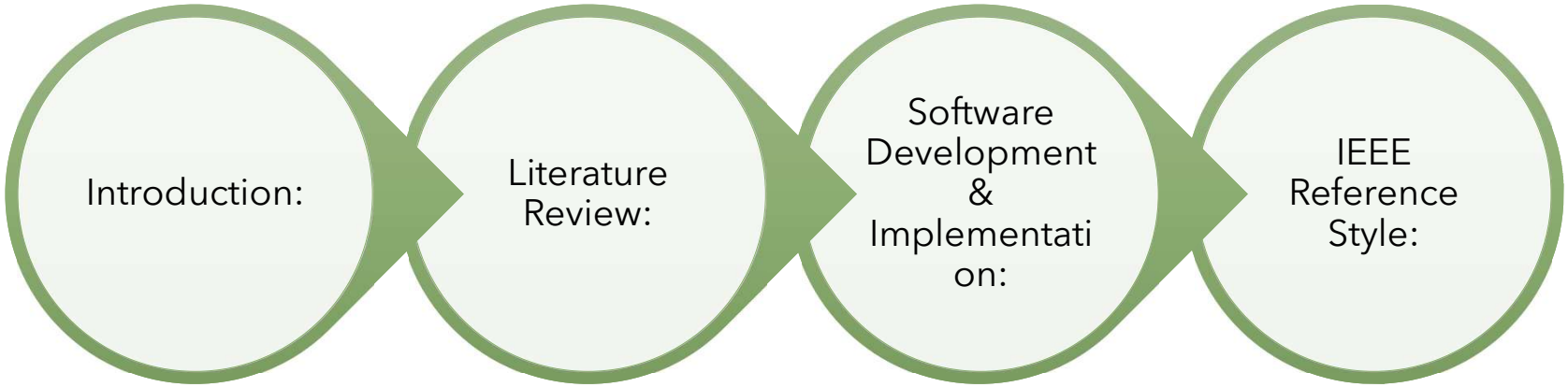
Lecture Overview

- Objective: Guide on structuring and writing the capstone project proposal
- Key Sections Covered
  - Introduction
  - Literature Review
  - Software Development & Implementation
  - IEEE Reference Style

Importance of a Well-Structured Proposal

- Cho thấy tính khả thi của dự án
- → được phê duyệt
- → thực hiện thành công

Key Sections of the Proposal



- Define background, objectives, research question, rationale
- Analyze existing research, identify gaps, justify approach
- Propose solution, methodologies, technologies
- Ensure accurate citation and referencing

Introduction Section Overview

Purpose:

- Set the stage for the project, introduce key elements

Components:

- Background, Objectives, Research Question, Rationale

Defining the Project Background

Context:

- Provide a clear understanding of the problem

Content:

- Include relevant history, current state, and any related issues

Setting Objectives

SMART Objectives:

- Specific, Measurable, Achievable, Relevant, Time-bound

Example:

- "Develop an AI-based tool to optimize supply chain management within 6 months."

Formulating the Research Question

Focus:

- Should be specific and answerable

Example:

- "How can machine learning improve real-time inventory management?"

Crafting a Compelling Rationale

Importance:

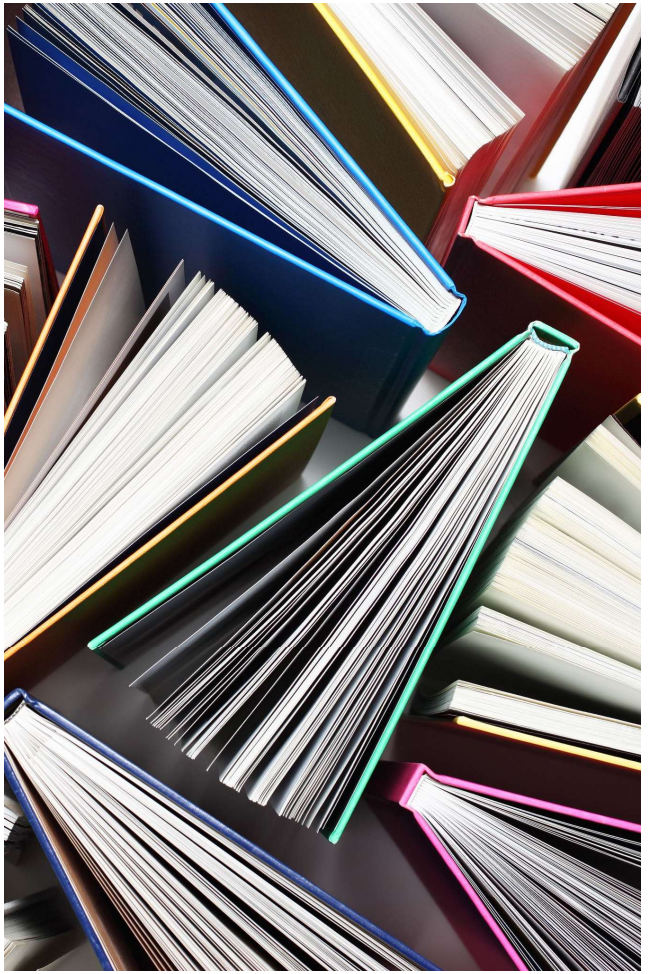
- Explain why solving the problem is crucial

Justification:

- Connect the project to broader industry needs or societal benefits

Literature Review

Purpose:	• Establish the research foundation, demonstrate understanding of the topic
Components:	• Review of existing literature, critical analysis, identification of gaps



Conducting a Thorough Literature Review

Steps

- Identify key sources
- Summarize relevant findings
- Analyze and synthesize the information

Tools:

- Databases like IEEE Xplore, Google Scholar

Critically Evaluating Existing Solutions

Focus:

Compare and contrast existing solutions

Criteria:

Effectiveness, scalability, limitations

Outcome:

Highlight gaps or areas needing improvement

Proposing a Feasible Software Solution

Solution Design: Describe the core functionality and architecture

Alignment: Ensure it directly addresses the research question

Example: "A cloud-based system for real-time data processing in supply chains."

Justifying Your Chosen Approach

Link to Research: Base your approach on findings from the literature review

Rationale: Explain why your solution is the best option

Example: "Our approach leverages AI for real-time decision-making, addressing the identified gap in speed and accuracy."

Software Development & Implementation Overview

Role:	• Outlines how the proposed solution will be realized
Components:	• Solution description, methodology, tools, and technologies

Selecting Methodologies

Methodology Options: Agile, Waterfall, DevOps, etc

Selection Criteria: Project scope, team size, timelines

Example: "Agile methodology for iterative development and continuous feedback."

Relevant Technologies and Tools

Technology Examples: Python, TensorFlow, AWS, etc

Tool Selection: Match tools to project needs and team expertise

Example: "Using Python for machine learning model development."

IEEE Reference Style Overview

Importance:

- Maintains academic integrity, enables verification of sources

Features:

- Numbered citations, specific format for reference list

IEEE In-Text Citations and Reference List

- In-Text Citations:
  - Use numbered brackets, e.g., [1], [2-4]
- Reference List Format
  - Journal Article: Author , “Title,” Journal Name, vol., no., pp., month, year
  - Book: Author , Title, xth ed., City: Publisher, year, pp

Common IEEE Referencing Mistakes

- Mistake 1: Inconsistent numbering or formatting
- Mistake 2: Missing references in the list
- Mistake 3: Incorrect ordering or incomplete citations
- Tip: Double-check against IEEE guidelines