

Ontology Requirements Specification Document (ORSD)

Ontology Name: Capstone Project Ontology

Version: 1.0

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Course: Semantic Web

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1. Purpose

The main goal of the Capstone Project Ontology is to provide a formal, shared conceptualization of the capstone project domain in academic institutions. This ontology aims to represent essential components of a capstone project—such as proposals, stakeholders, deliverables, and evaluation criteria—in a way that facilitates information sharing, semantic querying, and project management on the Semantic Web.

2. Scope

The ontology will cover the general framework of a capstone project in higher education, with a focus on modeling its main elements. These include:

- Project Proposal (Title, Objectives, Abstract)
- Stakeholders (Students, Supervisors, Reviewers)
- Project Deliverables (SRS, Design Document, Gantt Chart, Poster)
- Evaluation Criteria (e.g., Technical Merit, Innovation, Documentation Quality)

The ontology will represent these components at a moderate level of granularity to ensure general applicability across academic domains while remaining usable in semantic applications.

3. Implementation Language

The ontology will be implemented using **OWL (Web Ontology Language)**, which is a W3C-recommended standard for building ontologies in the Semantic Web domain.

4. Intended End-Users

- **Students:** to understand and structure their capstone project requirements.
- **Supervisors and Reviewers:** to evaluate and manage student project submissions.
- **Academic Coordinators:** to monitor project progress and documentation.
- **Ontology Developers:** to extend and reuse the ontology in educational applications.

5. Intended Uses

- Use 1: To support semantic search and classification of capstone projects.
- Use 2: To assist students in tracking required project components and deliverables.
- Use 3: To facilitate project assessment using clearly defined evaluation criteria.
- Use 4: To integrate with academic systems for project management and knowledge sharing.

6. Ontology Requirements

a. Non-Functional Requirements

Requirement ID	Description	Priority
NFR1	The ontology must use standardized semantic web technologies (OWL, RDF).	High
NFR2	The ontology should be extensible to support multiple academic disciplines.	Medium
NFR3	The ontology must be easily integrable into university knowledge bases.	High
NFR4	The ontology should provide multilingual support (English/Urdu).	Low
NFR5	The ontology must ensure clarity and unambiguity of defined terms.	High

b. Functional Requirements: Groups of Competency Questions

CQG1: Project Proposal

- CQ1. What is the title of the capstone project?
- CQ2. What are the objectives of the project?
- CQ3. What is the abstract or summary of the project?

CQG2: Stakeholders

- CQ4. Who are the students involved in the project?
- CQ5. Who is supervising the project?
- CQ6. Who are the reviewers or evaluators assigned?

CQG3: Documentation

- CQ7. Has a Software Requirements Specification (SRS) document been submitted?
- CQ8. Is there a Design Document prepared?
- CQ9. Is a Gantt Chart available to represent the project timeline?
- CQ10. Has a poster presentation been created?

CQG4: Evaluation Criteria

- CQ11. What criteria are used to evaluate the capstone project?
- CQ12. What scores or grades have been assigned for each criterion?

Each competency question group has been validated and assigned a **high priority**.

7. Pre-Glossary of Terms

a. Terms from Competency Questions

Term	Frequency
Capstone Project	6
Proposal	3
Stakeholder	2
Supervisor	2
Reviewer	2

Term	Frequency
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Documentation	4
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Evaluation	3
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b. Terms from Answers

Term	Frequency
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Title	1
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Objectives	1
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Abstract	1
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Student	2
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SRS	1
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Poster	1
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Score	1
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c. Objects

Object	Description
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CapstoneProject	Core class representing the student project
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Person	Superclass for Student, Supervisor, Reviewer
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Document	Represents deliverables such as SRS, Poster
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EvaluationCriterion	Individual criterion used in grading
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Grade	Assessment or score linked to an EvaluationCriterion
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