

Overview of Radiography Capstone Project

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Designed as a guide for students, faculty, and clinical mentors

1. Purpose & Scope

Aspect	Description
Goal	Demonstrate the ability to integrate diagnostic imaging theory, clinical practice, research methods, and professional ethics into a self-directed project.
Outcome	A written dissertation/report (15-20 pages) + an oral/visual presentation (15 min) that addresses a real-world radiography problem or innovation.
Audience	Academic faculty, clinical preceptors, peers, and potentially external stakeholders (e.g., equipment vendors, hospital administrators).
Accreditation Alignment	Meets ARRT/CRPE requirements for critical thinking, evidence-based practice, and lifelong learning.

2. Typical Project Themes

Category	Example Topics
Clinical Quality Improvement	Reducing repeat rates in CT head protocols; optimizing patient positioning for portable X-ray in ICU.
Technology & Innovation	Evaluation of AI-assisted bone age assessment; feasibility of low-dose digital radiography in pediatric trauma.
Radiation Safety	Implementation of dose-tracking software; staff education on ALARA principles in interventional suites.
Patient Experience	Impact of communication scripts on anxiety in mammography; workflow redesign for faster turnaround in emergency radiography.
Education & Training	Effectiveness of simulation-based teaching for fluoroscopy; competency assessment tools for novice technologists.

3. Project Lifecycle

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1?? Topic Selection ? 2?? Literature Review ? 3?? Proposal Development
?
4?? IRB/Ethics Approval ? 5?? Data Collection ? 6?? Data Analysis
?
7?? Draft Report ? 8?? Presentation Preparation ? 9??
Defense & Submission

3.1. Milestones & Deliverables

Milestone	Deadline (Typical)	Deliverable
Topic Approval	End of Semester 1	Brief (1?2?page) description + rationale
IRB/Ethics	4?weeks after topic approval	Approved protocol or exemption letter
Literature Review	Mid?Semester 2	Annotated bibliography (15–20 sources)
Methodology Draft	6?weeks before data collection	Detailed methods section + data collection tools
Data Collection Complete	End of Semester 2	Raw data set + data?cleaning log
Analysis Report	2?weeks after data collection	Tables/figures + statistical summary
Final Report	4?weeks before defense	Full written capstone (APA/AMA style)
Oral/Visual Presentation	Defense day	Slide deck (??20 slides) + speaker notes

4. Research Design Options

Design	When to Use	Key Features
Quantitative – Descriptive	Baseline audits, repeat?rate studies	Structured data, statistical analysis (? ² , t? test, regression).
Quantitative – Experimental	Protocol changes, dose?reduction trials	Pre?/post?intervention, control group, randomization if feasible.
Qualitative – Exploratory	Patient?experience, staff perception	Interviews/focus groups, thematic analysis, NVivo or manual coding.
Mixed?Methods	Projects requiring both numbers and narratives	Sequential or concurrent design; integration of findings in discussion.

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Design

When to Use

Key Features