Open Institute of Technology

Professional Doctorate in Applied Artificial Intelligence Fact Sheet

Overall Program Description

The Professional Doctorate in Applied Artificial Intelligence (Applied AI) is an MQF/EQF Level 8 qualification designed to equip experienced professionals with the competences to lead innovation, transformation, and applied research in Artificial Intelligence across diverse sectors. Unlike traditional research doctorates in AI that focus primarily on theory-building and algorithmic novelty, this program emphasizes practice-led research projects where AI is applied responsibly and strategically to address real-world challenges in domains such as healthcare, finance, education, energy managements, automotive, media and entertainment, manufacturing, sustainability, and digital technologies.

Professional Doctorate programmes in applied fields are internationally recognised models (e.g., UK, Australia, North America). The OPIT program reflects this standard by combining doctoral-level rigor with applied industry relevance.

Rationale and Motivation

The demand for advanced AI leadership is rapidly growing, as organizations and societies face the opportunities and risks associated with AI adoption. Many professionals seek doctoral-level qualifications that are flexible, industry-relevant, and applied in nature. This program addresses that gap by focusing on the application, governance, and integration of AI, thereby enabling graduates to make measurable contributions without the expectation of becoming AI engineers.

OPIT is well positioned to deliver this program successfully. OPIT combines a strong academic foundation with industry-oriented curricula, international faculty expertise, and a proven capacity to deliver high-quality online education. Its current portfolio already emphasizes technology, management, and applied AI, ensuring alignment with the professional doctoral ethos.

Programme Features

- **Structure**: The programme can be completed over a minimum of 3 years full-time, or on a part-time basis over 6 years or more, depending on the student's professional and personal commitments. In the full-time pathway, Year 1 (60 ECTS coursework) provides a shared foundation in research methods, technology management, AI applications in industry, and applied research in AI domains. Years 2 and 3 (120 ECTS) focus on applied research, including the Research Proposal, Preliminary Research Investigation, and Doctoral Dissertation. The part-time distribution of ECTS is detailed later in this document.
- **Delivery Model**: The program is delivered 100% online, with coursework complemented by structured supervision, mentoring, and doctoral

committee oversight. This ensures flexibility for working professionals while maintaining academic rigor.

- **Learning Orientation**: All projects emphasize applied research in real-world contexts. Students are expected to design, implement, and evaluate AI-enabled solutions or frameworks that demonstrate originality, evidence-based methodology, and practical impact.

Governance and Quality Assurance

The program is overseen by the Doctoral Committee, composed of the Academic Director and Area Chairs. The Committee ensures quality and compliance throughout the student journey, including:

- Reviewing and approving Research Proposals.
- Confirming and monitoring the appointment of qualified Supervisors (internal or external).
- Ensuring ethical, methodological, and academic rigor in all projects.
- Approving the composition of Examining Committees for defenses.
- Reporting regularly to OPIT Management on program quality and outcomes.

Each student is supported by a Primary Supervisor, approved by the Doctoral Committee, and potentially a Co-Supervisor. Supervisors must hold a PhD (or equivalent MQF/EQF Level 8 qualification) and relevant professional or academic expertise. Supervisory arrangements are carefully documented and monitored.

Quality assurance is embedded through continuous monitoring of student progress, periodic evaluations of coursework, supervisor feedback loops, and rigorous assessment of milestones (Research Proposal, Preliminary Investigation, Dissertation). The program also incorporates external examiners to guarantee impartiality and international standards.

Distinctive Value

The Professional Doctorate in Applied AI is unique in combining:

- A clear focus on applied contributions (practice-led innovation, strategic AI integration, governance and ethics).
- A delivery model designed for mid-to-senior professionals, accessible globally through online learning.
- A robust governance structure that ensures academic rigor, professional relevance, and quality assurance.

Graduates will emerge as applied AI leaders: able to translate technical possibilities into strategic outcomes, shape responsible adoption practices, and generate new knowledge at the interface of AI and professional practice.

Target Audience

Ages 19 – 30	☒	Age 31 – 65	☒
Age 65+	☒		

Target Group

OPIT's Professional Doctorate in Applied Artificial Intelligence Program is designed for experienced professionals who wish to strategically research, explore and apply Artificial Intelligence in their sector, or in other sectors of interest. Anticipated learners include:

- **Mid-to-senior professionals, executives, and managers** across sectors such as technology, healthcare, finance, education, energy management, automotive, media and entertainment, manufacturing, public policy, and consulting, who seek to lead AI-driven innovation and transformation.
- **Domain experts and applied researchers** aiming to integrate AI into their discipline to solve complex problems, improve processes, or develop new value propositions.
- **Academic professionals** such as lecturers and applied researchers who wish to enhance their qualifications, bridge teaching and applied research, and guide responsible AI adoption in their field.
- **Aspiring thought leaders** interested in evidence-based applied AI contributions with measurable impact in their professional or societal context.

The program is therefore targeted at learners with substantial professional and/or academic experience, with a strong motivation to apply AI responsibly in practice, and the capacity to balance doctoral-level study with ongoing professional commitments.

The program is open to a global cohort of professionals, with the online model enabling participation from different geographies and sectors while maintaining OPIT's Malta-based quality assurance and accreditation.

Entry Requirements

Admission to the Professional Doctorate in Applied Artificial Intelligence follows a structured, multi-stage process designed to ensure that only candidates with the appropriate academic background, professional experience, and motivation are admitted.

1. Eligibility Criteria

Applicants must meet the following requirements:

- Academic qualifications:
  - A Master's degree (MQF/EQF Level 7 or equivalent for non-EU qualifications) in a STEM discipline, OR
  - A Master's degree (MQF/EQF Level 7 or equivalent for non-EU qualifications) in any non-STEM field plus at least five (5) years of relevant professional experience in a domain where AI adoption can have significant impact (e.g. healthcare, finance, manufacturing, education, public policy, technology, consulting).

- English language proficiency: Applicants must demonstrate proficiency in English through one of the following:
  - Native speaker;
  - Or recognised test scores: TOEFL ≥ 80, IELTS ≥ 6, Duolingo ≥ 95, Cambridge ≥ B2.

2. Application Package

Eligible candidates must submit a complete application package, including:

- Detailed CV and degree certificates.
- Statement of Purpose (SoP): maximum 2 pages, outlining the intended area of applied AI research, the envisaged contributions, and motivation fProvisional or joining the programme.
- Supervisory Agreement Form.
  - Signed by an eligible provisional supervisor, secured either (i) autonomously by the applicant, or (ii) with the support of the Programme Manager, who assists with introductions and matchmaking.
  - The Primary Supervisor is then confirmed by the end of the first year.

3. Admission Steps

The admission process proceeds as follows:

- Application Submission: The candidate submits the full application package.

- Eligibility Screening: Applications are checked against the entry requirements. Applicants who do not meet the eligibility criteria are automatically rejected. Only eligible candidates proceed further.
- Admission Interview: Conducted by the Programme Manager and a member of the Doctoral Committee. The interview assesses the applicant's fit, motivation, and readiness for doctoral-level study.
    - As part of the interview, candidates must deliver a short presentation on an applied AI problem drawn from their Statement of Purpose, demonstrating their ability to frame problems, think analytically, and articulate a strategic vision.
- Committee Review: The Doctoral Committee reviews the application, interview performance, and supervisory agreement. The Committee evaluates each case holistically, considering academic readiness, professional experience, motivation, and feasibility of the proposed area of research.
- Final Decision: Admission is competitive and not automatic. Decisions of the Doctoral Committee are final and non-appealable.

4. Selection Criteria

Admission decisions are based on:

- Academic readiness for doctoral-level study.
  Relevant professional experience and evidence of applied impact in context.
- Quality and clarity of the Statement of Purpose and interview presentation.
- Clear alignment between the candidate's goals and the objectives of the program.
- Demonstrated ability to balance doctoral study with professional commitments.
- Confirmation of provisional supervisory support.

Recognition of Prior Learning

OPIT recognizes previous academic and professional experience in different ways. Procedures that describe the mechanisms related to admission and RPL are entirely described at the following webpage:
https://www.opit.com/fee-admission/

Learning Outcomes for Knowledge obtained at the end of the programme	The learner will be able to: a) Critically evaluate theories, principles, and methods of Artificial Intelligence in applied professional contexts. b) Describe and explain technology management frameworks and innovation dynamics in relation to AI-driven transformation. c) Identify and analyse advanced research methodologies, including AI-augmented techniques for literature review, data collection, and analysis. d) Demonstrate critical awareness of sector-specific AI applications (e.g. healthcare, finance, manufacturing, education, public policy) and their contextual challenges. e) Interpret and synthesise regulatory, governance, and ethical frameworks relevant to responsible AI adoption.
Learning Outcomes for Skills obtained at the end of the programme	The learner will be able to: a) Apply and demonstrate advanced problem-solving methods to design AI-enabled solutions for complex, interdisciplinary challenges. b) Use and adapt AI-driven research techniques to critically evaluate and synthesise information from diverse sources. c) Design and implement applied AI solutions that extend and redefine existing practices in professional domains. d) Communicate and present complex AI-driven insights clearly to both specialist and non-specialist audiences. e) Develop and apply new methodologies that combine AI tools with traditional scientific and professional practices.

90 ECTS
for the MPhil Degree in Applied Artificial Intelligence (Exit option)

Hours of Total Learning 1 ECTS is equivalent to 25 total hours of learning, inclusive of contact hours, supervised placement and practice hours, self-study hours and assessment hours.	Total Contact Hours [1] 672 (Contact Hours are hours invested In learning new content under the Direction of a tutor/lecturer (e.g. lectures, participation in online forums, video-lectures)	Supervised Placement and Practice Hours 192 (During these hours the learner is supervised, coached, or mentored. Tutorial hours may be included here)
	Self-Study Hours 2080 (Estimated workload of research and study)	Assessment Hours 56 (Examinations/ presentations/ group work/ projects, etc.)
Total Learning Hours	**3000 Hours**	

180 ECTS
for the Professional Doctorate Degree in Applied Artificial Intelligence

Hours of Total Learning 1 ECTS is equivalent to 25 total hours of learning, inclusive of contact hours, supervised placement and practice hours, self-study hours and assessment hours.	Total Contact Hours [2] 972 (Contact Hours are hours invested In learning new content under the Direction of a tutor/lecturer (e.g. lectures, participation in online forums, video-lectures)	Supervised Placement and Practice Hours 502 (During these hours the learner is supervised, coached, or mentored. Tutorial hours may be included here)
	Self-Study Hours 2960 (Estimated workload of research and study)	Assessment Hours 66 (Examinations/ presentations/ group work/ projects, etc.)
Total Learning Hours	**4500 Hours**	

[1] In the case of online learning, synchronous and asynchronous learning activities under the direction and control of an instructor are considered as contact hours.
[2] In the case of online learning, synchronous and asynchronous learning activities under the direction and control of an instructor are considered as contact hours.

The Program Structure for the MPhil Degree in Applied Artificial Intelligence (Exit option)						
Module/ Unit Title	**Compulsory (C) or Elective (E)**	**ECTS**	**MQF Level**	**Mode of Teaching**	**Mode of Assessment**	**Term**
AI-Driven Research Methods	Compulsory	15	8	Live lectures, asynchronous contents, Supervision and mentoring, Peer learning and collaboration	Research Design Report, Case study analysis, Methodological essay	1
Technology Management and Innovation Strategy	Compulsory	15	8	Live lectures, asynchronous contents, Supervision and mentoring, Peer learning and collaboration	Strategic analysis report, Case study, Presentation, Defense of methodological choices	1
AI Applications in Industry	Compulsory	15	8	Live lectures, asynchronous contents, Supervision and mentoring, Peer learning and collaboration	Applied industry report, Case study analysis, Presentation, Reflective submission	2
Applied Research in AI	Compulsory	15	8	Live lectures, asynchronous contents, Supervision and mentoring, Peer learning and collaboration	Applied research review, Case study, Presentation, Reflective submission	2
Research Proposal	Compulsory	30	8	Supervision and mentoring	Written research proposal, Defense of research proposal	3
Total ECTS for Program Completion		**90 ECTS**				

The Program Structure for the Professional Doctorate Degree in Applied Artificial Intelligence

Module/ Unit Title	Compulsory (C) or Elective (E)	ECTS	MQF Level	Mode of Teaching	Mode of Assessment	Term
AI-Driven Research Methods	Compulsory	15	8	Live lectures, asynchronous contents, Supervision and mentoring, Peer learning and collaboration	Research Design Report, Case study analysis, Methodological essay	1
Technology Management and Innovation Strategy	Compulsory	15	8	Live lectures, asynchronous contents, Supervision and mentoring, Peer learning and collaboration	Strategic analysis report, Case study, Presentation, Defense of methodological choices	1
AI Applications in Industry	Compulsory	15	8	Live lectures, asynchronous contents, Supervision and mentoring, Peer learning and collaboration	Applied industry report, Case study analysis, Presentation, Reflective submission	2
Applied Research in AI	Compulsory	15	8	Live lectures, asynchronous contents, Supervision and mentoring, Peer learning and collaboration	Applied research review, Case study, Presentation, Reflective submission	2
Research Proposal	Compulsory	30	8	Supervision and mentoring	Written research proposal, Defense of research proposal	3
Preliminary Research Investigation	Compulsory	30	8	Supervision and mentoring	Written preliminary research report, Presentation and defense of preliminary research findings	4
Capstone Research Project and Doctoral Dissertation	Compulsory	60	8	Supervision and mentoring	Project, Dissertation	5-6
Total ECTS for Program Completion		**180 ECTS**				

AI-Driven Research Methods
Compulsory
15 ECTS
Term 1

Course Description

This module equips doctoral students with the advanced methodological competences required to design and execute rigorous applied research projects. The focus is on integrating traditional research approaches with contemporary AI-supported tools and practices. Students will critically evaluate methodological paradigms, learn to leverage AI for literature review, data collection, and analysis, and address the ethical and reliability challenges of AI-assisted research. The module emphasizes both the epistemological foundations of research and the practical skills necessary to produce valid, reliable, and impactful applied research outputs.

Tentative Topic List:

- Research design and methodological paradigms for applied doctoral research
- AI tools for literature review, knowledge discovery, and synthesis
- Data collection methods enhanced by AI
- AI-assisted approaches to qualitative and quantitative analysis
- Ensuring validity, reliability, and reproducibility in AI-augmented research
- Ethical considerations and responsible use of AI in research
- Writing, presenting, and defending AI-driven research proposals

Applying Knowledge and Understanding

At the end of the module/unit the learner will have been exposed to the following:

- Identify advanced research paradigms and methodological frameworks relevant to doctoral-level applied AI research.
- Describe how AI tools can support literature review, knowledge discovery, and synthesis in applied research contexts.
- Define and explain the principles of validity, reliability, and reproducibility when applying AI-driven research methods.
- List and classify AI-assisted approaches to data collection and analysis (e.g., text mining, natural language processing, machine learning).
- Recall and interpret ethical, regulatory, and governance frameworks that guide the responsible use of AI in research.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to:

- Integrate AI tools into the design and execution of doctoral-level research projects.
- Employ advanced AI-assisted techniques (e.g. NLP, machine learning) to enhance literature reviews and data analysis.
- Evaluate the reliability and reproducibility of research outputs produced through AI-supported methods.

- Adapt research methodologies to ensure ethical and responsible use of AI in professional contexts.
- Produce doctoral-level research proposals and outputs that combine AI-driven and traditional approaches in applied settings.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to:

- Use advanced digital platforms (e.g. OPIT's VLE, data analysis environments, AI research tools) to plan and manage doctoral research activities.
- Apply AI-enabled software (such as natural language processing and machine learning frameworks) to literature mining, data collection, and analysis.
- Demonstrate the ability to manage, curate, and ethically handle digital datasets in compliance with GDPR and research integrity standards.
- Operate collaborative digital tools (e.g. online peer review, Slack channels, shared repositories) to engage with supervisors and peers in a research community.
- Create digital artefacts such as reproducible research notebooks, dashboards, and reports that integrate AI-driven insights into doctoral-level outputs.

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Technology Management and Innovation Strategy
Compulsory
15 ECTS
Term 1

Course Description

This module provides doctoral students with an advanced understanding of how emerging technologies, including Artificial Intelligence, shape innovation cycles, business models, and societal change. The focus is on strategic management of technology and innovation at organisational, sectoral, and policy levels, equipping students to critically analyse technology adoption, evaluate long-term innovation dynamics, and design strategies for sustainable transformation. Particular emphasis is placed on the interplay between technological disruption, market forces, and governance structures, preparing candidates to lead technology-driven innovation in their professional contexts.

Tentative Topic List:

- Technology life cycles, diffusion of innovation, and adoption dynamics
- Strategic foresight and scenario planning in technology management
- AI and other emerging technologies as enablers of organisational transformation
- Platforms, ecosystems, and digital business models
- Responsible and sustainable innovation (ethics, regulation, societal impact)
- Risk management and governance of emerging technologies
- Future trends in technology and innovation strategy

Applying Knowledge and Understanding

At the end of the module/unit the learner will have been exposed to the following:

- Identify and describe advanced models of technology life cycles, diffusion of innovation, and adoption dynamics in professional contexts.
- Explain strategic foresight approaches and scenario planning techniques for technology management and innovation strategy.
- Critically evaluate the role of AI and other emerging technologies in driving organisational transformation and ecosystem development.
- Interpret and synthesise governance, regulatory, and ethical frameworks that shape responsible innovation across industries.
- Demonstrate critical awareness of current and future trends in technology management, including their economic, social, and environmental implications.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to:

- Integrate strategic management theories with applied AI to evaluate organisational innovation practices.

- Employ foresight and scenario planning tools to anticipate the long-term implications of emerging technologies.
- Evaluate technology platforms, ecosystems, and digital business models in diverse professional contexts.
- Adapt innovation strategies to balance competitiveness with ethical, regulatory, and sustainability requirements.
- Produce doctoral-level analyses and reports that link technology management concepts to applied AI-enabled transformations.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

- Use digital platforms and analytical software to monitor technology adoption trends and innovation performance indicators.
- Apply AI-powered foresight and simulation tools to model scenarios for technology management and strategic planning.
- Operate collaborative digital environments (e.g. dashboards, innovation management systems, online ecosystems) to co-create innovation strategies with peers and stakeholders.
- Demonstrate digital risk assessment tools to evaluate governance, regulatory, and sustainability implications of emerging technologies.
- Create digital artefacts (strategic maps, foresight models, dashboards) that visualise technology and innovation pathways for organisational or societal contexts.

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AI Applications in Industry
Compulsory
15 ECTS
Term 2

Course Description

This module explores the application of Artificial Intelligence across diverse industrial sectors, with a focus on translating theoretical concepts into practical, impactful solutions. Students will examine how AI is reshaping industries such as healthcare, finance, education, manufacturing, and sustainability, while also considering governance, ethics, and long-term societal implications. The emphasis is on developing the ability to critically assess, adapt, and integrate AI solutions within professional contexts, thereby enabling candidates to become strategic leaders of AI adoption and transformation.

Tentative Topic List:

- Overview of industrial applications of AI: cross-sector case studies
- AI in healthcare: diagnostics, decision support, and operations management
- AI in finance: credit scoring, fraud detection, algorithmic trading
- AI in manufacturing: predictive maintenance, quality control, process optimisation
- AI in education: adaptive learning systems and learning analytics
- AI in sustainability and smart cities: energy, mobility, climate modelling
- Risks, limitations, and governance issues in AI deployment.

Applying Knowledge and Understanding

At the end of the module/unit the learner will have been exposed to the following:

- Identify and describe advanced applications of AI across key sectors such as healthcare, finance, manufacturing, education, and sustainability.
- Explain the organisational, societal, and ethical implications of AI deployment in diverse industrial contexts.
- Critically evaluate sector-specific AI case studies, identifying opportunities, risks, and limitations.
- Interpret and synthesise best practices and frameworks for responsible AI adoption in business and public service environments.
- Demonstrate critical awareness of emerging trends in applied AI, including generative AI and multimodal systems.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to;

- Integrate sector-specific knowledge with AI concepts to critically assess industrial case studies.
- Employ evaluation frameworks to measure the business, organisational, and societal impact of AI adoption.

- Adapt AI applications to diverse professional domains, taking into account regulatory, ethical, and sustainability requirements.
- Produce applied reports and case studies that document and analyse AI-enabled transformations in real-world contexts.
- Advise decision-makers on opportunities and risks associated with deploying AI in their sector.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to

- Use digital case repositories, industrial databases, and online dashboards to explore AI adoption across industries.
- Apply AI-driven analytics and visualisation tools to assess industrial performance indicators and transformation outcomes.
- Demonstrate proficiency in collaborative digital environments (e.g. Canvas discussion boards, Slack channels, shared repositories) to exchange applied insights with peers.
- Operate digital frameworks for benchmarking AI use cases across sectors (e.g. sustainability scorecards, ROI dashboards).
- Create digital artefacts (sectoral briefs, applied research notes, case study visualisations) that showcase practical AI applications in industry.

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Applied Research in AI
Compulsory
15 ECTS
Term 2

Course Description

This module provides doctoral students with an advanced overview of contemporary research areas and applied domains in Artificial Intelligence. The emphasis is on developing the ability to critically engage with current research trends, identify opportunities for applied innovation, and design sector-specific research pathways. Students will explore vertical areas of AI such as natural language processing (NLP), computer vision, predictive analytics, and emerging frontiers (e.g. generative AI, reinforcement learning, multimodal systems). The module also focuses on how to translate these research advances into practice, ensuring responsible, ethical, and impactful applications in professional and societal contexts.

Tentative Topic List

- Overview of applied research areas in AI (NLP, computer vision, predictive analytics, etc.)
- Generative AI and multimodal approaches: opportunities and risks
- AI for decision-making and predictive modelling in organisations
- Emerging frontiers: reinforcement learning, AI for sustainability, human-AI collaboration
- Cross-sectoral applications and case studies (healthcare, education, finance, public sector, etc.)
- Translating academic research into applied innovation and policy impact
- Ethical, legal, and governance considerations in applied AI research.

Applying Knowledge and Understanding

At the end of the module/unit the learner will have acquired the following skills:

- Apply advanced AI research insights to design sector-specific applied research projects.
- Demonstrate the ability to evaluate and adapt cutting-edge AI methods to real-world challenges.
- Plan and develop research strategies that align emerging AI capabilities with organisational or societal needs.
- Use digital and AI-supported tools to analyse, synthesise, and present applied research outputs.
- Create doctoral-level research artefacts (reports, applied studies, strategic briefs) that reflect state-of-the-art AI advances.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to:

- Integrate insights from multiple AI research areas into a coherent applied research agenda.

- Employ advanced methodological frameworks to critically analyse current AI research outputs.
- Adapt frontier AI approaches (e.g. generative AI, multimodal systems) for use in professional or societal contexts.
- Produce applied research reports and briefs that translate cutting-edge AI research into practice.
- Advise peers, organisations, and stakeholders on how to leverage emerging AI research responsibly.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to:

- Use AI-enabled digital libraries, search tools, and bibliometric platforms to conduct advanced literature reviews.
- Apply AI-assisted data science environments (e.g. Python notebooks and libraries) for exploratory applied research.
- Operate explainability and interpretability tools to validate AI models in applied settings.
- Demonstrate proficiency in collaborative digital tools (e.g. Canvas, Slack, GitHub, Overleaf) to co-create applied research outputs.
- Create reproducible digital artefacts (datasets, notebooks, dashboards) that document and communicate applied AI research findings.

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Research Proposal
Compulsory
30 ECTS
Term 3

Course Description

This module transforms a candidate's initial Statement of Purpose into a defendable doctoral Research Proposal that is methodologically rigorous, ethically sound, and feasible in a real-world professional context. Candidates articulate the problem and contribution, conduct a focused literature review (with AI-assisted discovery where appropriate), justify the research design and methods, define a data strategy and analysis plan, address ethics and compliance (e.g., GDPR, IP), and present a realistic timeline and risk-mitigation plan. The outcome is a written proposal and a successful defense before the Doctoral Committee, providing a robust foundation for the Preliminary Research Investigation and the Dissertation.

Tentative topic list:

- Problem framing, research aims/questions, expected applied contribution
- Target context and stakeholders; organisational/societal relevance
- Focused literature review and gap analysis (using AI-assisted tools responsibly)
- Methodological choices and alternatives; evaluation design and metrics
- Data management plan (sources, access, privacy, security, reproducibility)
- Ethics and governance (research integrity, consent, risk, compliance)
- Feasibility, timeline (Gantt), resources, risk register, dissemination plan.

Applying Knowledge and Understanding

At the end of the module/unit the learner will have acquired the following skills:

- Apply advanced research design techniques to formulate answerable questions and a suitable methodology.
- Use AI-supported discovery and synthesis tools (responsibly) for literature review and scoping.
- Plan and design a data strategy (access, collection, governance, analysis, reproducibility).
- Create an evaluation protocol (metrics, baselines, validation, XAI/interpretability where relevant).
- Prepare a full proposal package (document, Gantt, risk register, ethics/DMP) ready for defense.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to:

- Integrate organisational constraints and stakeholder needs into the research design.
- Employ structured gap analysis to position the contribution (practice-led, governance, standards).

- Adapt methods to data realities (access limits, quality, bias) while preserving rigor.
- Produce a coherent, persuasive proposal suitable for supervisory and committee scrutiny.
- Advise practitioners on realistic scope, risks, and expected impact.

Module-Specific Digital Skills and Competences

At the end of the module/unit, the learner will be able to:

- Use digital libraries, AI-assisted search/screening tools, and reference managers for systematic scoping.
- Operate project and research-data tools (e.g., secure storage, version control, reproducible notebooks).
- Apply research integrity and privacy workflows (consent, anonymisation, access controls) in digital environments.
- Create proposal artefacts (Gantt charts, risk dashboards, evaluation templates) using collaborative platforms (Canvas, Slack, shared repos).
- Demonstrate effective online presentation/defense using secure videoconferencing and digital submission systems.

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Preliminary Research Investigation
Compulsory
15 ECTS
Term 4

Course Description

The Preliminary Research Investigation builds directly on the approved Research Proposal and represents the first empirical stage of the doctoral research process. Its purpose is to demonstrate feasibility, refine the research design, and generate preliminary evidence that supports the continuation of the project towards the Doctoral Dissertation. Candidates are expected to conduct data collection or pilot studies, apply the selected methodologies, test analytical frameworks, and address ethical, methodological, and logistical issues encountered in practice.

This module ensures that students are prepared to scale their research into a full doctoral dissertation while maintaining alignment with professional and societal contexts.

Tentative topic list:

- Refinement of research questions and methodology based on proposal feedback
- Pilot data collection and preliminary analysis
- Validation of data sources, tools, and procedures (e.g., quality, bias, reproducibility)
- Initial findings and implications for full-scale research
- Ethical review of data practices, including GDPR and integrity checks
- Risk assessment and adjustment of research design
- Reflection on feasibility, scalability, and potential contributions.

Applying Knowledge and Understanding

At the end of the module/unit the learner will have acquired the following skills:

- Apply advanced methods of data collection, preprocessing, and analysis in a pilot setting.
- Demonstrate the ability to validate and adapt analytical frameworks for applied contexts.
- Plan and develop a refined research design that addresses risks and limitations identified in the pilot stage.
- Use digital tools to document, visualise, and share preliminary findings.
- Create doctoral-level outputs (reports, feasibility studies, pilot analyses) that justify continuation towards the dissertation.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to:

- Integrate pilot findings into the ongoing refinement of the doctoral research project.
- Employ risk assessment and mitigation strategies to strengthen research feasibility.

• Adapt methodological approaches based on pilot outcomes without compromising rigor. • Produce a structured Preliminary Research Report suitable for committee review. • Advise peers and professional stakeholders on early findings and methodological adjustments.
Module-Specific Digital Skills and Competences At the end of the module/unit, the learner will be able to • Use digital platforms for secure data storage, management, and sharing of pilot results. • Apply AI-enabled data analysis tools for exploratory research and validation. • Operate reproducible research workflows (e.g., Jupyter notebooks, GitHub, cloud environments). • Demonstrate digital tools for bias detection, data quality checks, and reproducibility tracking. • Create digital artefacts (preliminary datasets, dashboards, feasibility reports) that document early-stage research.

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Capstone Research Project and Doctoral Dissertation
Compulsory
30 ECTS
Terms 5&6

Course Description

The Capstone Research Project and Doctoral Dissertation is the culminating stage of the Professional Doctorate in Applied Artificial Intelligence. Building on the approved Research Proposal and the Preliminary Research Investigation, candidates are required to complete a substantial applied research project that demonstrates originality, methodological rigor, and impact in a real-world context.

The Dissertation must show how advanced AI methods, theories, or frameworks can be responsibly applied to address complex organisational, societal, or industrial challenges. Unlike traditional Doctorate programs, emphasis is placed not only on theoretical advancement but also on practice-led innovation, strategic integration of AI, governance, and cross-disciplinary knowledge translation.

Tentative topic list:

- Execution of the applied research project at full scale
- Advanced data collection, analysis, and evaluation
- Integration of ethical, regulatory, and sustainability frameworks
- Development of new professional standards, frameworks, or applied methodologies
- Dissemination of research findings in academic and professional outlets
- Defense of the Dissertation before an Examining Committee.

Applying Knowledge and Understanding

At the end of the module/unit the learner will have acquired the following skills:

- Apply advanced AI methods and research designs to address complex, interdisciplinary challenges.
- Demonstrate the ability to generate, evaluate, and communicate original applied research findings.
- Design and implement new frameworks, processes, or professional standards based on dissertation results.
- Use advanced digital tools to manage data, validate models, and present doctoral research.
- Create a doctoral dissertation and related scholarly/professional outputs that meet international standards of quality and originality.

Module-Specific Learner Skills

At the end of the module/unit the learner will be able to:

- Integrate applied research findings into new professional standards or organisational practices.
- Employ advanced frameworks for governance, risk, and sustainability in AI projects.

• Adapt AI methods to sector-specific contexts while preserving rigor and ethics. • Produce a doctoral dissertation of publishable quality. • Advise professional and policy stakeholders using evidence-based insights from dissertation findings.
Module-Specific Digital Skills and Competences At the end of the module/unit, the learner will be able to: • Use AI-enabled digital research environments for large-scale data management and analysis. • Apply reproducible research workflows (e.g., notebooks, pipelines, repositories) to ensure transparency. • Operate advanced visualisation and explainability tools to communicate findings to expert and non-expert audiences. • Demonstrate competence in digital dissemination (open access, repositories, policy briefs, dashboards). • Create digital artefacts that accompany the dissertation, such as reproducible codebases, datasets, or applied frameworks.

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