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TUS Regulations for Industry-Based PhD Research Degrees 2024 - 2026

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TUS Regulations for Industry-Based PhD Research Degrees 2024 – 2026

1. An industry-based research degree is an NFQ Level 9 or NFQ Level 10 research programme which culminates in the award of a Masters by Research or a PhD and incorporates a specific focus on industry-based problems, trends and developments. Frequently, industry-based research degrees comprise a co-supervision arrangement encompassing a TUS supervisor(s), industry representatives as supervisors, and supervisor(s) from other universities (if applicable). Under this co-supervision arrangement, students produce a research dissertation that is usually based on a co-designed, co-developed research study which reflects the students' extensive engagement with industry and further advances extant academic research.

2. While industry-based PhD is the term that usually describes this type of doctoral degree provision, terms including 'industry academic collaborative degrees', 'company-based doctoral degrees' and 'industry PhD degrees' are also used regularly. Industry-based PhDs and Masters degrees by research have also increased internationally in areas like industrial pharmaceuticals and engineering.

3. Essentially, an industry-based Masters by Research or PhD bridges the gap between theoretical/research knowledge and its practical, skills-based and commercial applications. Crucially, these degrees stimulate entrepreneurship, creativity and innovation and encompass a strong ethos towards 'real world' applications. Graduates of these programmes are highly sought after nationally and internationally due to the high degree of theory-practice interchanges in their work and the distinct industry focus encapsulated in the resultant research.

4. Some of the principal objectives of industry-based Masters by Research and industry-based PhD degrees, as per academic research, are to establish and/or to further build cooperative, collaborative research between a university, industry, and an employee/researcher, on specific projects that are of high value to each of the parties (e.g. industry, student, supervisors). Industry-based Masters by Research and PhD degrees prepare early career researchers (ECRs) for careers primarily in industry. They also constitute important career pathways for persons who already work in industry who want to become more specialised in a particular area/field, upskill and leverage practice-research interchanges in their work. These degrees facilitate knowledge-exchange, strengthen competitiveness and solidify relationships between Higher Education Institutions (HEIs) and industry.

5. The *TUS Postgraduate Research Regulations 2023-2026* and associated processes and procedures laid down by the university are operationalised for industry-based Masters by Research and PhD programmes. This includes principals, governance and policy, award types, standards and processes pertaining to programme entry, application and registration, responsibilities of the student, faculty, and supervisors, qualification requirements, progression, confirmation and transfer, the approval of external and internal examiners, examinations and reviews and disputes.

6. Industry-based Masters by Research and PhD programmes differ from structured Masters by Research and PhD programmes in the following ways; generally speaking, the latter (structured programmes) are usually completed primarily in an academic setting (e.g. a university), under the sole supervision of academics, and they may or may not have a commercial or industry-related focus (depending on discipline and/or field of study, research question, aims and objectives etc). The outputs of 'traditional' Masters by Research and structured PhDs are frequently expected to impact in academia firstly (e.g. peer-reviewed academic papers, conference outputs) and depending on the area/field of study, on industry secondly (e.g. product development, commercialisation, enterprise development). In contrast, industry-based Masters by Research and PhD programmes impact on industry in the first instance and academia in the second but this does not compromise on the academic rigour that is expected of a normal NFQ Level 9 or Level 10 thesis.

7. The industry-based Masters by Research and PhD candidate should have an industry representative (or more than one industry representative in some cases) as a formal part of their supervisory team along with a primary academic supervisor when a resource is available in industry to adopt the role of an industry supervisor. Substantial parts of an industry-based Masters and PhD are completed in industry (as opposed to an academic setting), for which there is an ECTS credit allocation, and the research should have distinctive industry and commercially related orientations. The impacts of the research are normally in industry first and in academia, second.

8. An industry-based Masters by Research degree can be offered in any of the following areas as per the *TUS Postgraduate Research Regulations 2023-2026* (p. 10): Master of Arts (MA) / Master of Science (MSc) / Master of Business (MBus) / Master of Engineering (MEng), Master of Law (LLM).

Industry-Based Masters by Research and PhD programmes: Important Features

9. Students who undertake industry-based Masters by Research and PhD programmes are generally defined as either (a) 'Industry Linked PhD candidates' or (b) 'Industry Researcher Candidates'.

(a) **Industry Linked Masters by Research and PhD candidates** undertake research projects that are usually co-designed by the university and industry. Opportunities to become embedded in industry are incorporated in specific research programmes by way of an industry placement. Students will spend a substantial portion of their PhD on site with the industry partner to advance their own learning of context, internalise industry-relevant knowledge and skills and heighten their application of industry-based skills to the research project under study.

(b) **Industry Researcher Masters by Research and PhD candidates** are industry professionals who, supported by their employers, undertake a Masters by Research or PhD degree in partnership with a university while retaining their full employment and salary entitlements.

10. The defining features of Industry-based Masters by Research and PhD programmes are as follows:

a) Programmes incorporate a distinct industrial, experimental and commercial focus. Research studies are highly relevant to specific companies and/or to trends and developments that occur in an industry (or interrelated set of industries) more broadly. This research is also highly relevant to academic literature and is publishable in peer-reviewed academic journals and in practice-based journals and other outputs.

b) There is strong co-operation between the industry and the university in relation to the study. This co-operation facilitates access to new knowledge, networking, technology exchange and innovation, whilst also deepening industry-academic co-operation;

c) Joint supervision arrangements between the university and industry are in place to facilitate the research. Industry supervisors are usually full supervisory partners with TUS in the research, although the primary supervisor must be a TUS Faculty member who is suitably qualified for PhD primary supervision in line with the criteria established in Part 4.1 'Research Supervisors' in the *TUS Postgraduate Research Regulations 2023-2026* (p. 21). The industry supervisor is usually employed in the same company where the research candidate is based.

d) Industry-based Masters by Research and PhD programmes are characterised by significant experience in industry itself. Frequently, this takes the form of a dedicated work placement which is built into individual programmes or an employee completes their research based on relevant gaps, trends or developments identified in respective industries (which may be their own workplaces);

e) Industry-based PhD programmes aim to optimise students' employability through exposing them to industry trends, needs and field-related aspects of their research problem/area;

f) Students who enrol on industry-based Masters and PhD programmes are recent graduates in specific fields/disciplinary areas and/or are persons with extensive industry experience. The flexibility and orientation of these programmes to work-based issues/problems and trends renders them highly valued by employers and specific companies nationally and globally.

Industry Based PhD Programme Requirements

11. An industry-based PhD student must submit a thesis in either monograph or article-based format in accordance with the thesis regulations outlined in the *TUS Postgraduate Research Regulations 2023-2026*, wherein the following must be demonstrated;

    a) The candidate evidences a significant contribution to knowledge and scholarship in a specific discipline/field with distinct reference to an industry-based issue or trend. The thesis may also focus on the development of a new product, process or service within one or more areas that have a distinct commercial or industry focus.

    b) The thesis should apply and correspond to the stipulations of NFQ Level 10 degrees on the NFQ.

    c) The candidate investigates an industry-related problem, issue (or set of problems/issues), which is/are critically examined through extensive analysis of academic literature and extant research, methodologies and techniques which are described and critiqued in depth in the resultant thesis.

    d) Students must demonstrate a systematic understanding of knowledge which is at the forefront of a field of learning.

    e) The candidate completes the requisite ECTS credit requirement for the programme which is connected to industry placement and/or experience.

f) An industry-based PhD thesis must demonstrate and correspond to the stipulations provided in Table 2 TUS Adopted Award Standard of the *TUS Postgraduate Research Regulations 2023-2026*, (p. 16).

g) The candidate demonstrates original and critical thought in relation to the industry-related problem by way of extensive engagement with extant research and its subsequent application to the research problem under study.

h) The candidate displays an appropriate depth and breadth of knowledge and understanding of the relevant field(s) of study in the thesis and at the viva voce examination.

i) The candidate has gained significant expertise with respect to basic and advanced methodologies and analytic techniques.

j) The thesis has an appropriate structure and writing style.

k) The work is peer reviewed and is suitable for publication in academic journals that are peer-reviewed, as well as industry-focused publications/outputs that are appropriate to specific disciplines/fields.

l) The thesis demonstrates sufficient knowledge of industry and the applied aspects of the work are discernible.

m) The conclusions and recommendations contain sufficient reference to industry as well as academic research.

n) The candidate should in the viva voce examination communicate the results of the research in a systematic fashion, demonstrating critical engagement and knowledge of their research problem and/or issues in relation to industry and other externally related developments.

12. While industry-based PhD programmes usually differ substantially from structured PhD programmes, there are significant convergences. The submitted work must constitute an independent and original contribution to knowledge as per 6(a). The submitted work must also correspond to Table 2 TUS Adopted Award Standard as per the *TUS Postgraduate Research Regulations 2023-2026* (p. 16) and to Level 10 on the National Framework of Qualifications (NFQ). The industry-based thesis submission, in all its elements, must demonstrate a thorough understanding of research methods that are appropriate to the discipline and the research topic under study. Industry-based PhD theses are subject to the same requirements of structured PhDs with regards to regulations, academic rigour, examination, administration, fees and appeals.

13. Comparable to structured PhD's, industry-based PhDs should both correspond to and operationalise national and European policy frameworks that link to and regulate 'best practice' in doctoral level programme provision. This includes the 9 principles encompassed in the *National Framework for Doctoral Education* (HEA, 2017), the *Salzburg II Recommendations* (EUA, 2010) and *Good Practice Elements in Doctoral Training* (LERU, 2014).

14. The full length of an industry based-PhD thesis is the same as a structured/unstructured PhD (e.g. maximum 100,000 words).

15. The industrial research and/or experimental research in which the doctoral candidate participates must be directly related to the resultant thesis.

16. All students who are completing industry-based PhD programmes are subject to annual progression as per Part 7 'Progression, Confirmation & Transfer' of the *TUS Postgraduate Research Regulations 2023-2026* (pp. 32-35). Supervisors in specific companies/industries shall also be invited to attend and participate at these progression panels.

17. Industry-based PhD degrees are offered on both a part-time and full-time basis. This ensures greater flexibility with regards to programme delivery, engagement and uptake from industry.

18. The usual length of time for completion of an industry-based PhD full-time is four years and for part-time is six years. The length of time for completion of an industry-based Masters by Research full-time is two years and three years part-time.

19. Industry-based PhD theses should follow the guidelines laid out in the *TUS Graduate School Guidance for PhD Thesis Submission*.

20. Students who are registered on industry-based PhD degrees must complete a viva voce examination on their research. The stipulations of Part 8 in the *TUS Postgraduate Research Regulations 2023-2026* apply (pp. 35-42). Industry-based examiners can be appointed as examiners; however, they must be educated to doctoral (NFQ Level 10) level and should complete training in PhD viva voce examinations and the *TUS Postgraduate Research Regulations 2023-2026* provided by the TUS Graduate School and TUS Faculties in advance of the examination.

Industry Based Masters by Research Programme Requirements

21. An industry-based Masters by Research student must submit a thesis in either monograph or article-based/publication format in accordance with the thesis regulations outlined in the *TUS Postgraduate Research Regulations 2023-2026* (p. 12) wherein the following must be demonstrated;

    a. The student has carried out a programme of research and has attained the standard specified by TUS in accordance with the level indicators and award-type descriptors of NFQ Level 9 in the National Framework of Qualifications (NFQ).

    b. Have a mastery of principles and theory of their discipline, competence in appropriate research methods.

    c. An ability to manage complexity, integrate knowledge and may contribute to the literature in a field.

    d. An industry-based Master's thesis must demonstrate and correspond to the stipulations provided in Table 1 TUS Adopted Award Standard of the *TUS Postgraduate Research Regulations 2023-2026* (p. 14).

    e. The candidate evidences a contribution to knowledge or understanding of a specific issue, trend or problem in a specific industry-related discipline/field. Their research demonstrates a critical awareness of problems or issues which is informed by forefront learning in their discipline/subdiscipline.

    f. The candidate demonstrates elements of critical engagement with the research topic and critical analysis of extant academic literature and theoretical perspectives as appropriate to their respective field of study and thereby applied to further and deepen understanding of the issue/problem.

    g. The candidate displays an appropriate depth and breadth of knowledge as appropriate to Level 9 of the NFQ.

    h. The candidate demonstrates learning and application of new, high-level skills including in the areas of novel and emergent technologies.

    i. The candidate demonstrates sufficient knowledge of basic and advanced methodologies and analytic techniques as appropriate to NFQ Level 9.

    j. The thesis has an appropriate structure and writing style.

    k. The candidate demonstrates the ability to self-evaluate, take responsibility for their own research and their ability to reflect on societal and discipline-related social and academic norms;

l. The thesis demonstrates sufficient knowledge of industry and the applied aspects of the work to industry-related contexts are discernible.

m. The conclusions and recommendations contain sufficient reference to industry as well as academic research.

22. The full length of an industry-based Masters by Research thesis is a maximum of 50,000 words.

23. The industrial research and/or experimental research in which the industry-based Masters by Research candidate participates must be directly related to the resultant thesis.

24. All students who are completing industry-based Masters by Research programmes are subject to annual progression as per Part 7 'Progression, Confirmation & Transfer' of the *TUS Postgraduate Research Regulations 2023-2026* (pp. 32-35). Supervisors in specific companies/industries shall also be invited to attend and participate at these progression panels.

25. In addition, students registered on industry-based Masters by Research programmes are permitted to transfer to the industry-based PhD programme in line with stipulations in 7.1.3 'Confirmation to PhD Register and Transfer from Masters to PhD Register' of the *TUS Postgraduate Research Regulations 2023-2026* (pp. 33-35). An external examiner based in industry may be appointed to the transfer panel; however, they should be qualified to doctoral level and hold an NFQ Level 10 PhD degree. It is advisable that at least one examiner should have successfully supervised at least one student to completion at the level to which they are appointed.

26. Industry-based Masters by Research programmes are offered on both a part-time and full-time basis. This ensures greater flexibility with regards to programme delivery, engagement and uptake from industry.

27. The usual length of time for completion of an industry-based Master's degree full-time is two years and for part-time is three years.

28. In line with the stipulations of Part 2.4 'Qualification Requirements' of the *TUS Postgraduate Research Regulations 2023-2026* (p. 13), students who complete industry-based Masters degrees are not automatically subject to a viva voce examination. Examiners may request a viva to ensure that students have reached

the required learning outcomes and/or to verify their role in completing the research. This latter point is especially pertinent in the case of team-based, collaborative research projects.

Supervision, ECTS Requirements and Training

29. The Principal Supervisor, Co-supervisors and Mentor Supervisor (if applicable) and the Internal and External Examiner(s), must be familiar with the appropriate academic regulations and prevailing norms for the conduct and presentation of research within the relevant discipline that allows for submission of an industry-based Masters by Research or PhD.

30. Registered students who are enrolled on Industry-Based Masters and PhD programmes shall be offered all training and development opportunities from the TUS Graduate School. In addition, the TUS Graduate School, in conjunction with Research Committees at faculty level shall provide all industry-based supervisors with mentorship and extensive training opportunities. This includes examinations processes, excellence in supervision, the viva voce, and the *TUS Postgraduate Research Regulations 2023-2026*.

31. Students who are registered on industry-based Masters and PhD programmes should complete requisite modules as appropriate. As per 2.3 'Doctoral Programme Types' of the *TUS Postgraduate Research Regulations 2023-2026* (p. 11), industry-based PhD candidates should normally complete 15 ECTS of Research Skills and 15 ECTS of Disciplinary Skills or Transferable Skills which can include technical specialist modules offered/co-designed by industry providers. As per 2.2 'Masters Programme Types' of the *TUS Postgraduate Research Regulations 2023-2026* (p.10), the Industry-Based Masters by Research programme will consist of 120 ECTS credits of which 15 credits will be taught modules. A pass grade is required in all taught elements of the programmes.

32. The decision of how many ECTS credits should be earned per industry provided training programme will be determined on a programme-by-programme basis. By way of example, these ECTS credits may be earned from discipline-specific and skills-based training programmes relating to techniques, trends, methodologies, reflective practice and transversal skills which may be offered by industry. In the event that such education and/or training is offered through industry, the learning

can be accredited by TUS through an Advanced Disciplinary Research module which aims to connect theory to practice. The awarding of ECTS credits in this module is subject to an investment of work that is equivalent to 5 ECTS, appropriate evidence of engagement in the training, and completion of an assessment as stipulated in the module descriptor (e.g. a portfolio submission framed within a reflective practice orientation). The format and style of the portfolio submission shall be determined on a programme-by-programme basis.

33. Students registered on Industry-Based Masters programmes are subject to complete the requisite 15 ECTS credits from Research Skills modules as per pages 10-11 of the *TUS Postgraduate Research Regulations 2023-2026*. However, they may opt to complete an assignment in any one of the modules that is oriented to reflective practice, marrying together the module learning materials with the specificities of their research problem, trends and issues in industry and their unique research context. The exact specifications of this assignment should be determined on a programme-by-programme basis but it should not exceed the word count of assignments that are prescribed to students on other Masters by Research programmes who are completing the same modules. Appropriate and effective learning materials shall be made available to students in the domain of reflective practice for each module.

34. All students who are registered on industry-based Masters and PhD programmes have the same entitlements as students who are completing other types of Masters by Research and PhD programmes including structured research programmes. This includes access to the library, student services, the VLE, and training and development opportunities offered by the TUS Graduate School and by TUS Faculties (note: this is not an exclusive or exhaustive list).

References

1. TUS Postgraduate Research Regulations 2023-2026
2. National Framework for Doctoral Education Layout 1 (hea.ie)
3. Salzburg II Recommendations Salzburg II – Recommendations (eua.eu)
4. Good-Practice-Elements-in-Doctoral-Training-Executive-Summary.pdf