Proposal for Modifying the Qualifying Exam Process

Based on the new format, the students have two options to choose from for their proposal exam described in the following.

Option A: Written Exam from Core Courses

This option involves slight modifications to the current exam structure, including the removal of the research topic course as the third course and limiting students to two attempts to pass. If they do not pass within these attempts, they will be switched to the Master's program.

Option B: Research-based Exam

- The student must form a committee of **at least three faculty members** from the department, with the option of inviting one additional external member from another department.

- The **advisor's role** involves assisting the student in forming the exam committee and approving both the chosen research area and paper format. However, the advisor will not serve as a member of the exam committee.

- The student is required to submit either a **research paper** or a high-quality **survey paper** following the format and page limit specified by the committee.

   Research Paper Guidelines:
   - Identify the Research Problem.
   - Provide a thorough literature review of related work in the selected research area.
   - Propose novel ideas, approaches, methodologies, etc.
   - Include simulation or implementation, or theoretical results to demonstrate the feasibility and effectiveness of the proposed approach.
   - Offer qualitative and quantitative comparisons with previous works.

   Survey Paper Guidelines:
   - Cover major developments, foundational works, and current trends in the chosen research area.
   - Go beyond summarization by critically comparing existing methods, highlighting their strengths and limitations, and identifying gaps in the literature.
   - Use figures, tables, or taxonomies to organize and present information.
   - Synthesize findings to uncover high-level insights and patterns.
   - Propose future research directions based on the synthesis of the reviewed works.

- A student who has published a peer-reviewed paper as the lead (first) author during their time in the Ph.D. program may request to use that publication to satisfy the written component requirement. To do so, the student must submit:

    1. A copy of the published paper (or final accepted version),
    2. A letter from the advisor detailing the contributions of each co-author, specifically highlighting the student's role in the conception, execution, and writing of the work.

    The qualifying exam committee will evaluate the submission using the same criteria as for original submissions, including the clarity of the literature review, the novelty and significance of the contributions, and the quality of the results and comparisons. The committee reserves the right to request additional material or clarification if necessary.

- The committee will evaluate the written report using a rubric that assesses the student's proficiency in the research topic and the overall quality of the paper. The evaluation will be rated as **Excellent, Very Good, Good, Fair, or Poor**.

- The student must deliver a presentation to the committee, followed by a question-and-answer session. The committee will evaluate the presentation based on the student's proficiency in technical communication, clarity and organization of the slides, effectiveness of delivery, depth of understanding, and ability to engage with and respond to questions, using the same rubric of **Excellent, Very Good, Good, Fair, or Poor**.

- The student must collect and provide relevant **materials and artifacts** related to the research, such as datasets, source code, and tools. During the Q/A session, the committee may request the student to explain, demonstrate, or run any portion of these materials to verify the student's direct contribution and understanding of the work.

- To pass the exam, the student must score **"Very Good" or higher** in both the written and oral components.

Time Limit for Completing the Qualifying Exam

- All components of the qualifying exam must be passed **within the first two years** of the student's enrolment in the Ph.D. program.

- A student may switch between the course-based and research-based exam options between attempts; however, the total number of attempts across both formats may not exceed two.