Year 1:

1. Literature Review: Conduct an extensive review of existing literature on reinforcement learning, multiplex networks theory, and their interplay. Identify the key challenges, research gaps, and potential applications in this domain.

2. Problem Formulation: Define the specific multiplex networks theory problems that can be addressed using reinforcement learning techniques. Clearly articulate the objectives, constraints, and performance metrics of these problems.

3. Algorithm Development: Design and develop novel reinforcement learning algorithms tailored for multiplex networks theory problems. This may involve adapting and extending existing RL algorithms, considering the unique characteristics and complexities of multiplex networks.

4. Coursework and Pedagogical Practice: Pass Reinforcement Learning course to gain RL expertise. Assist as a TA in Introduction to Linux and Supercomputers course to confirm proficiency in C programming. Complete Research Methodology, History and Philosophy, and English Exam by the end of the first year.

5. First Paper Publication and Conference: As a continuation of MSc research, publish a paper on "Articulation Points in Multiplex Networks" – an introduction to the problems of multiplex network resilience and integrity. First conference by the end of the year.

Year 2:

1. Implementation and Experimentation: Implement the developed algorithms and validate their efficacy through experimental simulations and real-world data sets. Compare their performance against existing approaches and evaluate their scalability, robustness, and effectiveness in solving multiplex networks theory problems.

2. Performance Analysis and Optimization: Analyze the performance of the developed algorithms, identify potential limitations or bottlenecks, and propose necessary optimizations or modifications. This may involve fine-tuning hyperparameters, exploring different network architectures, or incorporating additional techniques from related fields.

3. Thesis Proposal Defense and Qualifying Exam.

4. Second paper publication and Conference: Report results of the second year of research in a paper and a conference.

Year 3:

1. Generalization and Extension: Investigate the generalization capabilities of the developed algorithms by applying them to a wider range of multiplex networks theory problems. Explore their adaptability to different network topologies, dynamics, and scenarios.

2. Application and Impact: Apply the developed reinforcement learning techniques to real-world case studies or practical applications in areas such as social networks, transportation systems, or biological systems. Evaluate the impact of these approaches in solving complex multiplex network problems and provide insights for their potential applications in relevant fields.

3. Third paper and conference by the first half of the third year.

4. Thesis Writing and Dissemination: Summarize the research findings, contributions, and future directions in the form of a PhD thesis. Additionally, disseminate the research outcomes through peer-reviewed publications, conference presentations, and collaborations with researchers in the field.