



Activity-based schedule (Kanban/User Story Mapping)

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Community & UN SDG(s): **SaskTel network engineers and architects**

UN SDG(s):

- SDG#7: Affordable and clean energy
- SDG#11: Sustainable cities and communities
- SDG#12: Responsible consumption and production
- SDG#13: Climate action

Date: **February 8th 2025**

Project Name		Eco-Resilient Networks: Smart Deployment for the Future		
Activity		Duration	Start Date	End Date
MVP 1: Simulation Environment Setup				
Work Package 1.1: Development Environment Setup				
Install Python, Mininet, libraries, set up GitHub	1		2025-02-10	2025-02-10
Work Package 1.2: Core Simulation Framework Implementation				
Define classes for Node, Link, VNF, and SFC	2		2025-02-11	2025-02-12
Implement basic network topology creation (fat-tree)	2		2025-02-13	2025-02-14
Implement SFC request generation	2		2025-02-15	2025-02-16
Implement basic VNF placement (random, for initial testing)	1		2025-02-17	2025-02-17
Work Package 1.3: Data Input/Output Modules				
Create JSON schema for input files (network topology, SFC definitions)	1		2025-02-18	2025-02-18



Implement functions to read network topology and SFC definitions from JSON/CSV files

2

2025-02-19

2025-02-20

Work Package 1.4: Visualization Module

Implement basic network topology & VNF placement visualization

3

2025-02-21

2025-02-23

Activity 2: Scrum #1 (Feb 24)

Prepare slides, demo, and talking points for progress update.

1

2025-02-23

2025-02-23

Present progress to instructor and peers.

1

2025-02-24

2025-02-24

MVP 2: Algorithm Implementation & Evaluation

Work Package 2.1: Embedding Policy Implementation

Implement *Tradeoff-Aware* Embedding (TAE) policy

3

2025-02-25

2025-02-27

Work Package 2.2: Redundancy Optimization Algorithm (PSO)

Implement basic Particle Swarm Optimization (PSO) algorithm

3

2025-02-28

2025-03-02

Integrate PSO with TAE embedding policy

2

2025-03-03

2025-03-04

Work Package 2.3: Performance Metric Calculation

Implement availability, carbon footprint, and latency calculations

3

2025-03-05

2025-03-07



Activity 3: Scrum #2 (Mar 10)

Prepare slides, demo, and talking points. Focus on demonstrating VNF placement and optimization.	2	2025-03-08	2025-03-09
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Present progress to instructor and peers.	1	2025-03-10	2025-03-10
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Work Package 2.4: Algorithm Comparison & Evaluation

Implement Availability aware and Carbon aware Policies	4	2025-03-11	2025-03-14
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Design experiment matrix, run simulations, analyze and compare results	4	2025-03-15	2025-03-18
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Work Package 2.5: Other Redundancy Optimization Algorithms

Implement Simulated Annealing (SA) and Genetic Algorithm (GA)	4	2025-03-19	2025-03-22
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Activity 4: Scrum #3 (Mar 24)

Prepare slides, demo, and talking points. Focus on comparing different policies/algorithms.	1	2025-03-23	2025-03-23
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Present progress to instructor and peers.	1	2025-03-24	2025-03-24
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MVP 3: Documentation and Reporting (This will happen throughout the project lifecycle)

Work Package 3.1: Code Documentation

Document code using docstrings and comments	Ongoing	2025-02-10	2025-04-05
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Work Package 3.2: User Guide

Write and finalize user guide	3	2025-03-25	2025-03-27
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Work Package 3.3: Research Paper

Write introduction and methodology sections	3	2025-02-20	2025-02-22
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Write background and literature review sections	3	2025-03-06	2025-03-08
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Write results and discussion sections	4	2025-03-19	2025-04-22
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Finalize and proofread research paper	2	2025-04-02	2025-04-03
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MVP 4: Delivery

Work Package 4.1: MVP Integration and Testing

Integrate and test MVP components	2	2025-04-04	2025-04-05
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Prepare and rehearse MVP demo	1	2025-04-06	2025-04-06
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Activity 5: Project Submission (Apr 7)

Create slides, practice presentation, prepare for Q&A.	2	2025-04-04	2025-04-05
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Final presentation, submit code, paper, and all required documents.	1	2025-04-07	2025-04-07
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