

ECE 807 – CIS Applications I

Fall 2019

Project Information

Project Description

Implement the problem of routing and spectrum allocation (RSA) for static optical connections and experiment with it for different network topologies. Routing should be implemented using Dijkstra or Bellman Ford algorithms and the spectrum allocation should be performed using the first-fit approach. Performance results should include (i) blocking rate vs no. of connections, (ii) slot utilization vs no. of connections, and (iii) computational time required. Subsequently, implement path-based dedicated protection techniques including finding link-disjoint as well as link-and-node-disjoint paths. Compare the cases of no protection, link-disjoint path protection, and link-and-node disjoint path protection for the aforementioned performance metrics.

Project Information

- This is individual work that aims to:
 - Understand the project idea
 - Research data sources to find information and apply critical thinking to analyze information
 - Plan and implement a complex (simulation) task
 - Produce an output within a limited timescale
 - Write a comprehensive project report
 - The report should be a minimum of 20 pages long (single space, single column, 11 size font). The report should include the following 6 sections:
 - Introduction
 - Introduction
 - Motivation
 - Objectives
 - Project Outline
 - Literature Review/State of the art
 - Project Implementation
 - Performance Evaluation
 - Conclusions
 - References (IEEE transactions style)

Important Notes:

1. You can use either Microsoft Word or Latex (preferred) to write the report.
2. All material used for the project must be taken from scientific journal/conference papers and books and must be appropriately cited.