

The Open University Sri Lanka
Faculty of Engineering Technology
Department of Electrical and Computer Engineering

Performance Modelling
EEX5362

Mini Project-part 01

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01. Identify a Complex System

System selection: Hospital Patient Registration and Appointment Management System.

The Hospital Patient Registration System is a healthcare delivery process that manages the registration of patients, scheduling doctors, managing appointments, managing treatment, and billing. It creates a digital workflow for the various stakeholders — patients, doctors, and administrative staff — that improves workflow in the hospital.

This is a complex system because there are many components that are dependent on each other for acceptable performance:

- Patient registration queues vary based on the daily arrival rate.
- Appointment scheduling is influenced by doctor availability and the amount of time required to consult.
- Treatment and billing are linked to the outcome of the appointments.
- Real-time dependencies for data between departments (reception, doctors, billing).

The dataset used will gather all of the dynamics across five files — patients, doctors', appointments, treatments, and billing—to allow for analysis of the system for efficiency, throughput and bottlenecks.

02. Define Performance Objectives

Performance Objective	Description
Minimize Patient Waiting Time	Reduce time between registration and consultation to improve patient satisfaction.
Maximize Doctor Utilization	Ensure doctors' schedules are efficiently filled without idle time or overbooking.
Identify Bottlenecks in Registration Flow	Detect times or departments where patient flow slows down due to resource or scheduling issues.
Improve Appointment Throughput	Increase number of successfully completed appointments per day.
Optimize Resource Allocation	Balance patient loads across available doctors and departments.
Reduce No-show Rate	Identify reasons and patterns behind missed appointments to improve scheduling accuracy.