

# **Solving the U-Shaped Assembly Line Balancing Problem Type-II Using a Genetic Algorithm**

## **Project Final Report**

EMU427 – Heuristic Methods for Optimization

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# 1 Introduction

## 2 Problem Formulation

### 2.1 UALBP-II Definition

### 2.2 Mathematical Model

## 3 Description of the Genetic Algorithm

### 3.1 Representation

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### 3.3 Selection, Crossover, Mutation

### 3.4 Repair and U-Shaped Decoding

## 4 Results

### 4.1 Parameter Tuning

### 4.2 Run-by-Run Performance

### 4.3 Best Solution Details

## 5 Contribution to Sustainable Development Goals

## 6 Conclusions

## A Python Source Code

Listing 1: Simple Python Example

```
1 def add(a, b):
2     return a + b
3
4 print(add(3, 5))
```