UNIVERSITY OF CAPE TOWN

Department of Electrical Engineering

EEE4022F/S - Final Year Project

Graduate Attribute Tracking Form

Student name:	Julian Banks	DP Awarded? [Y/N]	
Student no:	BNKJUL001	Supervisor name:	
Date:	23/09/2023	Date:	
Student signature:		Supervisor signature:	

GA 1: Problem Solving

Student Response: I have broken my problem down into three sections. The first section deals with day ahead load predictions using machine learning. The second section deals with predicting day ahead generation. This will be done using a weather forecast and calculations based on the microgrids components. The third section ties these to inputs together and uses machine learning to optimally schedule loads.
Supervisor Response:

GA 6: Professional and Technical Communication

Student Response: I am making notes on oneNote, in matlab livescripts, and compiling data on a Latex document when I get the chance. I am using GitHub for backups and version control.
Supervisor Response:

GA 4: Investigations, Experiments, and Data Analysis

Student Response: So far I have performed an exploratory data analysis on the load data, learned various machine earning approaches and implemented ARIMA , LSTM and NN models. I believe there is still scope to improve the predictions but I have moved onto the next section. I have modeled various feasible grid layouts using Homer PRO. The next week will entail doing the calculations for energy generation prediction after which I will move onto the final section (scheduling with ML)
Supervisor Response:

GA 8: Individual Working

Student Response: I have been working in DC lab and every day. I use ClickUp, a project management app to schedule time, layout plans, and keep track of sections.
Supervisor Response:

GA 9: Independent Learning Ability

Student Response: From never having touched a machine learning algorithm to being able to make closed loop forecasts has been a really fun learning curve. I have made use of online resources such as MathWorks course, online blogs, documentation and tutorials to learn my way around.
Supervisor Response:

Instructions:

Students must explain in this document what they **have already done** and what they **plan to do** to satisfy each Graduate Attribute. Descriptions of each GA is provided below. Supervisors may then respond to the student's plans and current progress, providing additional comments or advice as they see fit. If the student's progress is sufficient, they may indicate that DP is awarded.

GA 1: Problem Solving

Identify, formulate, analyse and solve complex engineering problems creatively and innovatively.

GA 4: Investigations, Experiments and Data Analysis

Demonstrate competence to plan and conduct investigations and experiments. The balance of investigation and experiment should be appropriate to the discipline. Research methodology to be applied in research or investigation where the student engages with selected knowledge in the research literature of the discipline. Note: An investigation differs from a design in that the objective is to produce knowledge and understanding of a phenomenon and a recommended course of action rather than specifying how an artefact could be produced.

GA 6: Professional and Technical Communication

Demonstrate competence to communicate effectively, both orally and in writing, with engineering audiences and the community at large. This course evaluates the long report component of this outcome at exit level. Material to be communicated is in an academic or simulated professional context. Audiences range from engineering peers, management and lay persons, using appropriate academic or professional discourse. Written reports (10 000 to 15 000 words plus tables, diagrams and appendices) should cover material at exit-level. Methods of providing information include the conventional methods of the discipline, for example engineering drawings, as well as subject-specific methods.

GA 8: Individual, Team and Multidisciplinary Working

Demonstrate competence to work effectively as an individual, in teams and in multidisciplinary environments. This course evaluates the **individual** working component of this learning outcome at exit level.

GA 9: Independent Learning Ability

Demonstrate competence to engage in independent learning through well developed learning skills. Operate independently in complex, ill-defined contexts requiring personal responsibility and initiative, accurately self-evaluate and take responsibility for learning requirements; be aware of social and ethical implications of applying knowledge in particular contexts.