

## Capacity Planning Capstone Project

**Allyson Arias, Erin Foley, Michael Hindin, Connor Kiley, and Ruan Zorgman**

Binghamton University, Binghamton, NY 13902, USA

Corresponding author's Email: [arias5@binghamton.edu](mailto:arias5@binghamton.edu)

**Author Note:** ALLYSON ARIAS is a Senior Undergraduate Industrial and Systems Engineering student at Binghamton University in the Systems Science and Industrial Engineering Department. She is also a Mathematical Science minor. She is an active member in the professional engineering sorority, Alpha Omega Epsilon. She also holds an Executive Board position as Corresponding Secretary in the Tau Beta Pi Engineering Honor Society. Her interests include system optimization, quality control, and project management.

ERIN C. FOLEY is a Senior Undergraduate Industrial and Systems Engineering student at Binghamton University in the Systems Science and Industrial Engineering Department. She is an active member of the National Society of Black Engineers and has held the position of academic excellence chair and fundraising chair for the Binghamton University Chapter. Her interests include project management, quality, and environmental engineering.

MICHAEL HINDIN is a Senior Undergraduate Industrial and Systems Engineering student at Binghamton University in the System Science and Industrial Engineering Department. He is an active member in the Institute of Industrial and Systems Engineers. He is currently participating on the IISE Rockwell Automation Arena Simulation Competition team. His interests include project management, quality control, and system optimization.

CONNOR KILEY is a Senior Undergraduate Industrial and Systems Engineering student at Binghamton University. His hometown resides in New Jersey and is about to earn his BS in Industrial and Systems Engineering. His interests include systems optimization, quality control, and project management.

RUAN ZORGMAN is a Senior Undergraduate Industrial and Systems Engineering student at Binghamton University. He has received his High School diploma from Pleasantville High School in New York and is about to earn his BS in Industrial and Systems Engineering. His interests include Systems Optimization and Project Management.

Special acknowledgments to the operations team at BAE Systems and Carl Paugh.

**Abstract:** The Capacity Planning Team was assigned the task of assisting BAE Systems to optimize and improve the current build process of the Energy Storage System Top Carrier (ESS Top Carrier), a component used to complete the battery circuit for hybrid vehicles. BAE Systems plans to increase their throughput of the ESS Top Carrier by four times their current demand. Working alongside Manufacturing Engineers, the Capacity Planning team has started a methodology of conducting precise, repeatable time trials along with a running log containing the data. Using the time trials gathered, a simulation is being made to help show BAE System's current process layout along with interpreting the results. With this, BAE Systems will be able to keep a history of prior assemblies of the Top Carriers to help fluctuations in demand.

**Keywords:** Top Carrier, Throughput, Process Improvement, Optimization, Modeling and Simulation