#### Project Title Bearing Torque Characterization Test Rig

#### Requester: Jason Galary

#### Phone/Email: 508-996-6721 / JGalary@nyelubricants.com

#### Company: Nye Lubricants, Inc

#### Address: 12 Howland Road

#### Fairhaven, ma 02719

#### Date: 8/30/2019

### Please note that all RFP Forms must be completed by or before August 1 of a project cycle. If you have any questions regarding the RFP process for Senior Capstone Projects please contact the College of Engineering at 508-999-8539. Email inquires may be sent to rlaoulache@umassd.edu

**Title:**

# Bearing Torque Characterization Test Rig

**Description:**

Design and develop a test rig to measure the torque (and power consumption) needed to rotate a bearing which is subjected to various loads, speeds, and temperatures. This will indicate both traditional rotating torque and frictional torque which is important to understand losses in machine elements.

**Diagrams (optional):**

*<Insert block diagrams, flow charts, assembly drawings, schematics, etc to better describe your needs.>*

**Scope:**

<Describe the scope of the project.>

**Budget:**

TBD: Discussion of Budget at Initial Meeting with timeline for rough budget to be established.

**Known constraints (if any):**

* Hardware (subject to change)
* *Drive system to be determined*
* *Load Cell (Axial)*
* *Heat (sub ambient to ~150 Celsius)*
* *Torque Measurement*
* *Thermocouples*
* *Fixturing (different bearings)*
* Software (subject to change)
* Standalone windows application or embedded Linux DAQ system
* Data acquisition and analysis
* Output of raw data and final report
* Interfaces (subject to change)

*None at this time*

**Deliverables:**

* Bearing Torque Test Rig
* Instruction Manual
* Parts list with Supplier and cost
* Calibration Documents
* Source Code

**Legal Information:**

Check below if this project involves:

IP Ownership by Sponsor (please contact rlaoulache@umassd.edu)

Non-Disclosure Agreement (please contact rlaoulache@umassd.edu)

**Project Classification:**

Select one of the classifications— Intradisciplinary1 or Interdisciplinary[[1]](#footnote-1):

Intradisciplinary (select a single discipline)

Bioengineering

Civil and Environmental Engineering

Computer and Information Science

Computer Engineering

Electrical Engineering

Mechanical Engineering

Physics

Interdisciplinary (select multiple disciplines)

Bioengineering

Civil and Environmental Engineering

Computer and Information Science

Computer Engineering

Electrical Engineering

Mechanical Engineering

Physics

**Special Instructions:**

<List specific instructions here.>

(To be completed in September by the team that undertakes the project)

Team Number: ­­­­\_\_\_\_\_\_\_\_

#### Student 1: Peter Lunn\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Project Manager)

Student 2: Nathen Arruda\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Student 3: Ryan Proulx\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Student 4: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Student 5: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Faculty Advisor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

#### Project Mentor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Intradisciplinary: working within a single discipline.

   Interdisciplinary: integrating knowledge and methods from different disciplines, using a real synthesis of approaches. [↑](#footnote-ref-1)