

## MECHANICAL ENGINEERING 4A TECHNICAL ELECTIVES – FALL 2018

May 22, 2018

### Mechanical Engineering Specializations:

Students typically select their 4A courses from the courses offered in the ME specializations below. Students may select any combination of courses that meets their career objectives; however, at least 7 of the required 9 fourth-year technical electives must be ME courses. Note that there are additional rules about CSEs, and additional rules for students enrolled in the Biomechanics Option. Please refer to the ‘Mechanical Engineering Fourth Year Course Selection’ sheet available in the Mechanical Engineering Undergrad Office or on the web at <https://uwaterloo.ca/mechanical-mechatronics-engineering/sites/ca.mechanical-mechatronics-engineering/files/uploads/files/4th%20year%20course%20selection%20Jan%202013.pdf>

Please note that MSCI 331, MSCI 431, MSCI 432, MSCI 444, MSCI 452, MSCI 423, and MSCI 551 count as 4th year technical electives (non-ME technical electives). Contact Tanya Yoworski if you need more information.

### Instructor

#### 1. Fluid Mechanics

ME 566 Computational Fluid Dynamics for Fluids Engineering Design

G. Stublely

#### 2. Thermal Engineering

ME 456 Heat Transfer 2

Z. Tan

ME 459 Energy Conversion

G. Schneider

ME 599 Lect Sect 001, Spec Topics course “Building Energy Performance”

D. Mather

#### 3. Solid Mechanics and Design

ME 423 Mechanical Design 2

M. Worswick

ME 559 Finite Element Methods

K. Inal

#### 4. Engineering Materials

ME 435 Industrial Metallurgy

L. Liao

ME 436 Welding & Joining Processes

E. Biro

#### 5. Automation and Control

MTE 544 Autonomous Mobile Robots

A. Akhtar

ME 548 Numerical Control of Machine Tools 1

K. Erkorkmaz

ME 561 Fluid Power Control Systems

M. Vlasea

MTE 545 Intro to MEMS Fabrication

P. Nieva

**6. Welding Specialization** - see Prof A. Gerlich, Co-ordinator, or pick up hand-out from Tanya’s office, or visit the website at <https://uwaterloo.ca/mechanical-mechatronics-engineering/current-undergraduate-students-mechanical-engineering/welding-and-joining-specialization>

**7. Management Sciences Option** – visit the website at <http://ugradcalendar.uwaterloo.ca/page/ENG-Option-in-Management-Sciences1> or pick up hand-out from Tanya’s office.

**8. Biomechanics Option** – visit the website at <http://ugradcalendar.uwaterloo.ca/page/ENG-Option-in-Biomechanics1> or pick up hand-out from Tanya’s office.

**ME 4A Core Course – ME 481 (Project Course):**

S. Lambert

**Note:** ME 401 (‘Law for Professional Engineers’) counts as a **List D Complementary Studies Elective** [instructor is “Daniel Byskal”].