Proposed UG Thesis Topics – Summer 2020

We have decided to offer BIOE 4240 during the Summer 2020 session because there are a number of students who had planned to complete this course during summer as part of their plan for completing their program. However, we have been mandated that all summer classes must proceed without any in-person instruction and students will not be allowed to be on campus. Therefore, for the Summer 2020 session, we have decided that we will proceed with BIOE 4240 projects that fit into either the design or literature review categories. It should be possible for you to complete projects of these types from your home without needing access to department facilities.

Please review the list of topics provided below. In some instances, professors have identified specific “design” or “literature review” topics. In other instances, professors have indicated that they are willing to work with you to develop a literature review topic that is related to one of the topic areas that is listed. You are encouraged to contact professors to learn more about the projects listed – and to secure the topic that most interests you as topics are typically assigned on a first-come basis.

Y. Chen (204-474-6292) (Ying.Chen@umanitoba.ca)
1. Bionics (biologically inspired engineering design) (Literature review)

N. Cicek (E2-376 EITC) (204-474-6208) (Nazim.Cicek@umanitoba.ca)
No specific topics suggested, but Dr. Cicek’s research program is focused on utilization of waste products (anaerobic digestion of dairy manure, use of waste oat hulls as animal feed ingredient, single-use plates made from steam-pressed oat hulls).

C. Erkinbaev (E1-344 EITC) (204-474-6977) (Chyngyz.Erkinbaev@umanitoba.ca)
1. Design of smart shelves for efficient lab inventory
2. Smart packaging of food: Literature review

F. Jian (E1-532 EITC) (204-474-7965) (Fuji.Jian@umanitoba.ca)
1. Design a buckwheat hay harvester

D. Levin (E1-354 EITC) (204-474-7429) (David.Levin@umanitoba.ca)
No specific topics suggested, but Dr. Levin’s research program is focused on “biological production of biofuels and bioproducts”.

S. Liu (W581 Duff Roblin Bldg) (204-474-9616) (Song.Liu@umanitoba.ca)
1. Electrospun nanofibers for targeted delivery of anti-mycotoxin agents
2. Interactive antibacterial wound dressings

D. Mann (E2-376 EITC) (204-474-7149) (Danny.Mann@umanitoba.ca)
1. Literature review topic: Assessment of machine performance using auditory sensors
2. Online investigation: Emerging course subject areas in the discipline of biosystems engineering

J. Morrison (E1-356 EITC) (204-474-8496) (Jason.Morrison@umanitoba.ca)
On Research/Study Leave during 2020-2021 academic year.

J. Paliwal (E1-342 EITC) (204-474-8429) (J.Paliwal@umanitoba.ca)
No specific topics suggested, but Dr. Paliwal’s research program is focused on “infrared spectroscopy and electromagnetic imaging”.

Rahman, M. (W583 Duff Roblin Bldg) (204-474-8509) (Mashiur.Rahman@umanitoba.ca)
1. Environmental effects of and CO2 emission from textile processing (literature review)
J. Seniuk Cicek (333 Stanley Pauley) (204-474-9698) (jillian.seniucicek@umanitoba.ca)
Research focus: Engineering Education
Engineering education research may be described as a field of study that focuses on the scholarship of teaching and learning in engineering. Researchers employ the theories, frameworks, research methodologies, and practices of the learning and social sciences, for the ultimate purpose of describing and improving the training and education of engineers.
Topics:
1. Indigenous methodologies and approaches to research and education
2. Student culture, diversity, perspectives, identity, and learning
3. Program evaluation
4. Outcomes-based teaching and assessing
5. Engineering competencies
6. Instructor pedagogical practices and belief-systems
7. Epistemologies in engineering education

R. Sri Ranjan (E1-346 EITC) (204-474-9344) (Sri.Ranjan@umanitoba.ca)
1. Building and optimizing the operation of aeroponic systems for growing herbs/vegetables indoors

Q. Zhang (E1-399 EITC) (204-474-9819) (Qiang.Zhang@umanitoba.ca)
No specific topics suggested, but Dr. Zhang’s research program is focused on “airborne disease transmission, air quality in animal facilities, and airflow through porous media”.

W. Zhong (W579 Duff Roblin Bldg) (204-474-9913) (Wen.Zhong@umanitoba.ca)
No specific topics suggested, but Dr. Zhong’s research program is focused on “functional electrospun nanofibers for biomedical applications including wound care and tissue engineering”.