University of Manitoba
Price Faculty of Engineering
Department of Mechanical Engineering

MECH 4822 Heat Transfer (CRN 18617, Session A01)
Fall 2023
Supplementary Information

Reference Material

Reference Books for Numerical Methods, Numerical Heat Transfer, and Computing Languages

1. Bradie, B., *A Friendly Introduction to Numerical Analysis*, Prentice Hall, 2006. (Available on reserve).
2. Patankar, S.V., *Numerical Heat Transfer and Fluid Flow*, Hemisphere, Washington, 1980. (Available on reserve).
3. Minkowcyz, W., Sparrow, E. M., Schneider, G. E., and Pletcher, R. H. (Eds.), *Handbook of Numerical Heat Transfer*, John Wiley & Sons, Inc., 1988. (Available on reserve).
4. Magrab, E.B., Azarm, S., Balachandran, B., Duncan, J., Herold, K., Walsh, G., *An Engineer's Guide to MATLAB*, Prentice Hall, 2000. (Available on reserve).

Sources of Help for Linux Questions

1. Academic Computing and Networking (University of Manitoba Computer Services):
   Linux servers:
   https://umanitoba.ca/information-services-technology/research-computing/shared-compute-assistance-consultation.
2. Linux Reference Notes, Lehigh University:
3. https://webapps.lehigh.edu/hpc/training/Linux-2.pdf.
   . (Available from the instructor).
4. Course tutorials and reference material from the instructor.

Other course materials: Available on UM Learn.

Assignment Descriptions and Due Dates

- The plan of the assignments for the course is:

Assignment	Topic	Out	Due	Value
1	Parallel Plate Channel Flow	6 Sep. 2023	22 Sep. 2023	**6 %**
2	Cylinder External Flow	22 Sep. 2023	4 Oct. 2023	**7 %**
3	Benchmark Flow Simulation	4 Oct. 2023	13 Oct. 2023	**5 %**
4	MATLAB: 1D Transient Conduction	13 Oct. 2023	3 Nov. 2023	**12 %**

- Assignments must be submitted electronically. A single PDF file containing your solutions must be created and submitted in the correct assignment folder on UM Learn. Please see the course syllabus for the late penalty.
- A bonus 3.0% will be given for assignment and report documents prepared using LaTeX. In this case, the LaTeX source must be uploaded separately in a zip file.
- Solutions to the assignments will be posted on UM Learn after the submission date of the assignment. Contact the instructor if you want a hard copy of the solutions.

- There will also be self-study assignments that cover material that may be on term tests or the final exam. Those assignments will not be graded and solutions for them will be available on UM Learn.

Project Information

- The project will be done individually.
- The project timetable:

Topic	Handed Out	Progress Report Due (Value **10 %**)	Final Report Due (Value: **20 %**)
CFD Analysis Using STAR-CCM+	27 Oct. 2023	10 Nov. 2023	8 Dec. 2023

Examinations

- The term test and the final examination are open textbook and open supplementary notes. Course notes are not allowed during these examinations and no problem solutions may be written in the textbooks or supplementary notes. Students are encouraged to highlight important relations and to write comments in the margins of the textbook. Additional pages may not be added to the textbooks. A maximum of ten aid sheets (letter-size, double sided) will be permitted.
- In order to help students, prepare for the term tests and the final examination, some examples from previous years (with solutions) will be made available for review at an appropriate time on UM Learn.
- A student card (or equivalent photo identification) will be required at the term test and the final examination.
- Electronic devices other than dedicated calculators are not permitted during the term test and the final examination. A non-dedicated calculator device serving as a calculator (e.g., a mobile phone running a calculator application) is not allowed.
- The solution to the term test will be posted on UM Learn.

How to Succeed in this Course

- Take lecture notes and participate in class discussions.
- Bring your textbook and handouts to lectures and tutorials.
- Keep up to date with the course material. After each lecture: review your lecture notes, read the related material from the textbook, re-do the example problems from the lecture and the textbook to help you understand the concepts, theory and methods involved.
- Consult with the instructor and the teaching assistant regarding any difficulties in understanding the course material.
- Submit all assignments.
- Do not leave assignment tasks to the last minute. Give yourself time to work through the software to understand the concepts and steps.
- Prepare for term test and the final examination by working through example term tests and final examinations **without** referring to the solutions.

Recording Class Lectures

The instructor and the University of Manitoba hold copyright over the course materials, presentations and lectures which form part of this course. No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission from the instructor. Course materials (both paper and digital) are solely for the participants' private study and research.

Course Technology

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical, and legal manner. The student can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Student Accessibility Services. Student should not participate in personal direct electronic messaging / posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g., Facebook) online and offline "gaming") during scheduled class time. If a student is on call (emergency) the student should switch their cell phone to vibrate mode and leave the lecture setting before using it. (©S Kondrashov. Used with permission)

Class Communication

The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit:
http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2013_09_01_RF.pdf

Please note that all communication between the instructor and you as a student must comply with the electronic communication with student policy (http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.

Expectations

Students should familiarize themselves with the General Academic Regulations of the University of Manitoba and Section 3 of the Price Faculty of Engineering Academic Regulations regarding incomplete term work, deferred examinations, attendance and withdrawal. Students should also be aware of the Respectful Work and Learning Environment Policy, Communications Policy, as well as all other regulations and policies.

Course Web Page

Web Page:
http://home.cc.umanitoba.ca/~engsjo/teaching/MECH-4822/