University of Toronto, Department of Mechanical and Industrial Engineering
Winter session 2021
Graduate course MIE 1721S – Reliability
Instructors: D. Banjevic, office BA8139
Timing: Three hours/week, for 13 weeks, Time, date, place TBA
Starts: January 4, ends: April 9
Office hours: TBA
Course work: Two assignments (10%), mid-term test (35%), final exam (55%). Chance for a project.
Web-site: On Portal

COURSE OUTLINE

Textbook: John P. Bentley: Reliability and Quality Engineering, second ed., Addision-Wesley, 1999.
Recommended: An Introduction to Reliability and Maintainability Engineering, C.E. Ebeling, Waveland Press, Inc, 2005; lot of exercises (second edition).
(the textbook might change, if unavailable)

Tentative list of topics that will be covered is given below. Additional topics and extensions will be considered. A moderate knowledge of probability and statistics is assumed as a requirement.

1. Principles of quality
2. Principles of reliability
3. Reliability of systems
4. Failure rate data and models
5. Quality and reliability in design and manufacture
6. Reliability and availability in maintenance
7. Protective systems

Class slides will be posted. Some additional material will be available on the web-site.

List of some useful books:
Kapur, K.C., and Lamberson, L.R. (1977). *Reliability in Engineering Design*.
Cox, D.R., and Oakes, D. (1984). *Analysis of Survival Data*.
Meeker, W.Q., and Escobar, L.A. (1998). *Statistical Methods for Reliability Data*.
Ross, S.M. (1988). *A First Course in Probability*.
Crowder, M.J., Kimber, A.C., Smith, R.L., and Sweeting, T.J. (1994). *Statistical Analysis of Reliability Data*.
Blischke, W.R., and Murthy, D.N.P. (2000). *Reliability: Modeling, Prediction, and Optimization*.
Jardine, A.K.S., and Tsang, A.H.S. (2012). *Maintenance, Replacement and Reliability*, second ed.