

SCHOOL OF MATERIALS SCIENCE & ENGINEERING

Recommended Books for Semester 1, 2005/2006

FE1003: Chemistry

Text:

1. Raymond Chang, *Chemistry*, 8th Edition, 2005, McGraw-Hill, Inc.
2. Robert C. Atkins, Francis A. Carey, *Organic Chemistry: A Brief Course*, 3rd Edition, 2002, McGraw-Hill, Inc.

References:

1. Brady, Russell and Holum, *Chemistry: Matter and its Changes*, 3rd Edition, 2000, Wiley
2. J. A. Dean, *Lange's Handbook of Chemistry*, 15th Edition, McGraw-Hill, Inc.
3. T. W. G. Solomons, *Organic Chemistry*, 7th Edition, 2000, John Wiley & Sons, Inc.
4. P. Y. Bruice, *Organic Chemistry*, 2001, Prentice Hall International, Inc.

FE1005 Materials Science

Textbook:

1. William D. Callister, *Materials Science and Engineering An Introduction*, John Wiley, 6th Edition, 2003

Reference:

1. Michael F. Ashby and David R. Jones, *Engineering Materials 1: An Introduction to Their Properties and Applications*, 2nd Edition, Butterworth Heinemann, 2000.

FE1009 Effective Communication

Textbook

Verdeber, R.F. & Verderber, K.S. (2005). *Communicate!* (11th ed.). Belmont: Thomson Learning Inc. / Wadsworth.

Reference Books

1. Assante, L.E. (2005). *Communicate!* (11th ed.). Belmont: Thomson Learning Inc. / Wadsworth.
2. Wood, J.T. (2004). *Communication Mosaics: An introduction to the field of communication* (3rd ed.). Belmont: Thomson Learning Inc. / Wadsworth.

MS 1001 Physics 1

Text Books:

1. Hugh D. Young, & Roger A. Freedman: University Physics with Modern Physics, 11th Edition, Pearson/Addison Wesley, 2004

References:

- R A Serway & John J Jewett Jr.: Physics for Scientists and Engineers with Modern Physics, 6th Edition, Thomson Brooks/Cole, 2004

MS2001 Mathematics

Text:

1. Kreyszig: Advanced Engineering Mathematics, John Wiley, 8th edition, 1999.

MS2003 Applied Chemistry

Textbook

1. Gary D. Christian, Analytical Chemistry, John Wiley & Sons, 6th ed. , 2004

References

1. David Harvey, Modern Analytical Chemistry, McGraw-Hill, 2000
2. Paul C Hiemenz and Rai Rajagopalan, Principle of colloidal and Surface Chemistry, Marcel Dekker 1997
3. Bo Jonsson, Bjorn Lindman, Krister Holmberg and Bengt Kronberg, Surfactant and Polymers in Aquoues Solutions, John Wiley 2001
4. Drew Myers, Surfactant Science and Technology, VCH publishers, 1992

MS2004 Materials Structure and Mechanical Behaviors

Textbook:

1. Donald R. Askeland and Pradeep P. Phule, “The Science and Engineering of Materials”, Thomson, 2003.
2. Thomas H. Courtney, “Mechanical Behavior of Materials”, McGraw Hill, 2000.

Reference:

1. A. Kelly, G.W. Groves and P. Kidd, “Crystallography and Crystal Defects”, John Wiley, 2000.
2. R. Hertzberg, “Deformation and Fracture Mechanics of Engineering Materials”, John Wiley, 1996.

MS2005 Mechanics of Materials

Textbook

R.C Hibbeler, Mechanics of Materials, 2nd ed., Prentice Hall, 2005

Reference:

F. P. Beer, E. R. Johnston Jr, and J. T. DeWolf, Mechanics of Materials, 4th ed., McGrawHill, 2004

MS2006 Thermodynamics & Kinetics of Materials

1. Thermodynamics in Materials Science, Robert DeHoff, McGrawHill 1993
2. Thermodynamics of Materials, D.V. Ragone, Vol 1 and 2, John Wiley 1995
3. Phase transformation in Metals and alloy, D. Porter and K. Easterling, Chapman & Hall, 1992

MS2007 Characterization of Materials

Textbook :

1. B.D. Cullity and S.R. Stock: "Elements of X-Ray Diffraction", Prentice Hall, 2001.
2. P. J. Goodhew and F. J. Humphreys, *Electron microscopy and analysis*, Taylor and Francis, London, 1992.

References

1. Transmission Electron Microscopy, David B. Williams and C. Barry Carter, Kluwer academic publisher
2. Scanning Electron Microscopy and X-Ray Microanalysis: A Text for Biologist, Materials Scientist and Geologist, second edition, J.I Goldstein, D.E. Newbury, P. Echlin, David C. Joy, Alton D Romig Jr, Charles Fiori and Eric Lifshin, Kluwer Academic Press

MS3001: Metallic and Ceramic Materials

Textbooks

1. Structure and properties of engineering materials, D. Henkel and A. Pense, McGraw Hill, 2001.
2. Modern physical metallurgy and materials engg., R. Smallman and R. Bishop, Butterworth-Heinemann, 1999.
3. M. Barsoum, Fundamentals of Ceramics, The McGraw-Hill Companies, Inc., 1997.

References

1. Modern physical metallurgy, 4th edn., R.E. Smallman, Butterwoths, 1985
2. Into. To Engg. Materials, B.K. Agrawal, McGraw Hill, 1988.
3. A.J. Moulson and J.M. Herbert, *Electroceramics: Materials, Properties, and Applications*, Chapman and Hall, 1990.
4. R.C. Buchanan, *Ceramic Materials for Electronics: Processing, Properties, and Applications*, Marcel Dekker Inc., 1991.
5. D.W. Richerson, *Modern Ceramic Engineering, 2nd Edition*, Marcel Dekker, Inc., 1992.
6. L.L. Hench and J.K. West, *Principles of Electronic Ceramics*, John Wiley & Sons, 1990.
7. W.D. Kingery, H.K. Bowen, and D.R. Uhlmann, *Introduction to Ceramics*, John Wiley & Sons, 2nd Edition, 1991.

MS3003 MATERIALS FAILURE

Textbooks

- 1). K. R. Trethewey and J. Chamberlain, *Corrosion for Science and Engineering*, 2nd edition, Longman Scientific and Technical - John Wiley, 1995
- 2). R. W. Hertzberg, *Deformation and Fracture Mechanics of Engineering Materials*, 4th edition, John Wiley, 1996

References

- 1). J. A. Collins, *Failure of Materials in Mechanical Design*, 2nd edition, John Wiley, 1993
- 2). D. J. Wulpi, *Understanding How Components Fail*, 2nd Edition, ASM International, 1999

MS3002 Microelec Matls Processing/MS304_R

Textbook

1. S M Sze, *Semiconductor Devices - Physics and Technology*, Wiley, 1985

References

1. N G Streetman, *Solid State Electronic Devices*, Prentice Hall, 1995
2. G. Parker, *Introductory Semiconductor Device Physics*, Prentice Hall, 1995
3. Michael Shur, *Physics of Semiconductor Devices*, Prentice Hall 1990

MS305 MATERIALS ASPECTS IN DESIGN

Textbook

M.F.Ashby, *Materials Selection in Mechanical Engineering*, Butterworth-Heinemann, 1999.

References

1. G.E.Dieter, *Engineering Design. A Materials and Processing Approach*, McGraw-Hill, 1986.
2. K.G. Budinski and M.K. Budinski, *Engineering Materials, Properties & Selection*, Prentice Hall, 1999.
3. M.M.Farag, *Materials Selection for Engineering Design*, Prentice Hall, 1997.

MS402 Principles and Prevention of Corrosion

Text:

1. K. R. Trethewey and J. Chamberlain, *Corrosion for Science and Engineering*, 2nd edition, Longman Scientific and Technical - John Wiley, 1995
2. Fontana and Greene, *Corrosion Engineering*, third edition, McGraw-Hill Book Company

Recommended References:

1. Denny Jones, *Principles and Prevention of Corrosion*, 2nd Ed. Prentice-Hall, 1996
2. K. R. Trethewey, *Corrosion for Science and Engineering*, 2nd Ed. Longman, 1995.

MS403 Advanced Materials Science II:

Text:

Hertzberg R. W. *Deformation and Fracture Mechanics of Engineering Materials*, 4th Edition, 1996, John Wiley

References:

Courtney T. H. *Mechanical Behavior of Materials*, 2nd Edition, 2000, McGraw Hill

MS452 Polymer Technology

Reference book

1. D. H. Morton-Jones, *Polymer Processing*, Chapman & Hall, 1989.
2. R. J. Crawford, *Plastics Engineering*, second edition, Pergamon Press, 1990.

MS461 Microelectronics Packaging, Failure Analysis & Reliability

Textbook

Rao Tummala, *Fundamentals of Microsystems Packaging*, McGraw Hill, 2001

References

- Milton Ohring, *Reliability and Failure of Electronic Materials & Devices*, Academic Press, 1998
- John Lau, C.P. Wong, John L. Prince, and Wataru Nakayama, *Electronic Packaging Design, Materials, Process, and Reliability*, McGraw Hill, 1998.
- E. A. Amarasekera and F. N. Najm, *Failure Mechanisms in Semiconductor Devices*, John Wiley and Sons, 1998

MS 473: Biomaterials

Textbooks:

1. *Biomaterials Science: An Introduction to Materials in Medicine*, edited by B.D.Ratner, A.S.Hoffmann, F.J.Schoen and J.E.Lemons; Academic Press, 1996.
2. *Biological Performance of Materials*, J.Black, Marcel Dekker, 1999.
3. *Biomaterials, an Introduction*, 2nd Edition, J.B.Park and R.S.Lakes, Plenum Press
4. *Biomaterials: Principles and Applications*, J.B.Parks and J.D.Bronzino, CRC Press, 2003.

References:

Tissue-Biomaterial Interactions, Dee, Puleo and Bizios, Wiley-Liss, 2002.