Disciplina: Física dos Materiais
Código: MEM.003
Créditos: 03
Carga horária: 45 horas-aula
Módulo: Formação Geral

Ementa:

Estrutura eletrônica dos materiais e as interações atômicas. Sólidos cristalinos e amorfos. Defeitos em cristais. Transformações de fases em materiais. Propriedades elétricas, magnéticas e ópticas. Propriedades térmicas e teoria de bandas de energia. Supercondutores. Semicondutores. Superfícies e interfaces.

Bibliografia:

1. KITTEL, L. **Introduction to solid state physics**. 8th Edition. New York: John Wiley & Sons, 2004.
2. Griffiths, D. J. and Schroeter, D. F. **Introduction to Quantum Mechanics**. 3th Edition. Cambridge University Press; 2018.
3. EISBERG, R. and RESNICK, R. **Quantum physics**. 1th Edition, New York: John Wiley & Sons, 1974.
4. KINGERY, W. D.; BOWEN, H. K.; UHLMANN, D. R. **Introduction to ceramics**. 2th Edition. New York: John Wiley & Sons, 1976.
5. DeHOFF, R. T. **Thermodynamics in materials science**. 1th Edition, New York: McGraw-Hill, 1993.
6. SWALIN, R. A. **Thermodynamics of solids**. 2th Edition. New York: Wiley, 1972.
7. HENCH. L. L. and WEST, J. K. **Principles of electronic ceramics**. 1th Edition, New York: Wiley, 1990.
8. HUMMEL, R. E. **Eletronic Properties of Materials**. 1th Edition, New York: Springer-Verlag, 1985.
9. REED-HILL, R. E. and ABBASHIAN, R. **Physical metallurgy principles**. 3th Edition. Booston: PWS Publishing Company, 1994. 926p.
10. VOGEL, W. **Chemistry of glass**. 1th Edition, Columbus: Am. Ceram. Soc., 1985.

11. ASHCROFT, N. W. and MERMIN, N. D. **Solid State Physics**. 1th Edition, Cengage Learning, 1976.

12. MARDER, M. P. **Condensed Matter Physics**. 2th Edition, Willey, 2015.

13. CHAIKIN, P. M. and LUBENSKY, T. C. **Principles of Condensed Matter Physics**. 1th Edition, Cambridge University Press, 2000.

14. PATTERSON, J. and BALEY, B. **Solid State Physics**. 1th Edition, Springer Berlin Heidelberg, 2007.

15. KEER, H., **Principles of the Solid State**. 1th Edition, Wiley-Interscience, 1993.

16. WOLF, E. L. **Nanophysics and Nanotechnology: An Introduction to Modern Concepts in Nanoscience**. 2th Edition, Wiley, 2006.

17. KULKARNI, S. K. **Nanotechnology: Principles and Practices**. 3th Edition, Springer, 2014.

18. KUNO, M. **Introduction to Nanoscience and Nanotechnology: A Workbook**. 1th Edition, CreateSpace Independent Publishing Platform, 2014.

19. JOHAL, M. S. **Understanding Nanomaterials**. 1th Edition, CRC Press, 2011.

20. LI, S. and WANG, Gang. **Introduction to Micromechanics and Nanomechanics**. 1th Edition, World Scientific Publishing Company, 2008.

21. BINNS, C. **Introduction to Nanoscience and Nanotechnology**. 1th Edition, Wiley, 2010.

22. VENTRA, M.; EVOY, S.; HEFLIN, J. R. **Introduction to Nanoscale Science and Technology (Nanostructure Science and Technology)**. 1th Edition, Springer, 2004.

23. CAO, G. **Nanostructures and Nanomaterials: Synthesis, Properties & Applications**. 1th Edition, Imperial College Press, 2014.

24. WHITE, M. A. **Properties of Materials**. 2th Edition, Oxford University Press, 2011.