



Satuan Acara Pengajaran

MMS8110802 - Kinetik & Transformasi Fasa

Pengajar

Dr. Ir. Sotya Astutiningsih M.Eng

Minggu 1

Materi Penjelasan SAP; Tata tertib perkuliahan, penilaian dsb
Introduction to materials thermodynamics
Reading assignment: Thermodynamics & Phase diagrams, Chapter 1,
Porter & Easterling

Media Lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys,
2nd ed., Chapman & Hall, 1992
Lecture notes in Materials Thermodynamics: Prof. P.K. Gupta, Dept. of Mat Sci
& Engrg, The Ohio State University

Aktivitas kuliah

Minggu 2

Materi Thermodynamics & Phase diagrams.

Media

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys,
2nd ed., Chapman & Hall, 1992. p1-56

Aktivitas discussion
exercise

Minggu 3

Materi Diffusion:
Atomic mechanism; interstitial & substitutional diffusion

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys,
2nd ed., Chapman & Hall, 1992, p60-91

Aktivitas kuliah
Reading assignment: Chapter 2, Porter & Easterling

Minggu 4

Materi Diffusion

Media

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys,
2nd ed., Chapman & Hall, 1992

Aktivitas discussion
exercise

Minggu 5

Materi Crystal Interfaces and Microstructure: interfacial free energy, boundaries in
single phase solids

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys,
2nd ed., Chapman & Hall, 1992, p.110-161

Aktivitas kuliah
Reading assignment: Chapter 3 Porter & Easterling

Minggu 6

Materi Crystal interfaces

Media

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys,
2nd ed., Chapman & Hall, 1992

Aktivitas discussion & exercise

Minggu 7

Materi Review

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys, 2nd ed., Chapman & Hall, 1992

Aktivitas kuliah dan diskusi

Minggu 8

Materi Ujian Tengah Semester

Media

Referensi

Aktivitas ujian tertulis, tutup buku

Minggu 9

Materi Solidification: nucleation, growth & alloy solidification
Reading assignment: Chapter 4 Porter & Easterling

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys, 2nd ed., Chapman & Hall, 1992

Aktivitas kuliah

Minggu 10

Materi solidification
Case studies

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys, 2nd ed., Chapman & Hall, 1992

Aktivitas diskusi

Minggu 11

Materi Diffusional transformation: homogeneous nucleation; heterogeneous nucleation; precipitate growth

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys, 2nd ed., Chapman & Hall, 1992

Aktivitas kuliah

Minggu 12

Materi Diffusional transformation: transformation kinetics; recipitation & age hardening; spinoidal decomposition; particle coarsening; bainite transformation

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys, 2nd ed., Chapman & Hall, 1992

Aktivitas kuliah

Minggu 13

Materi Difusionless transformation: martensite crystallography; martensite nucleation, growth & tempering

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys, 2nd ed., Chapman & Hall, 1992

Aktivitas kuliah

Minggu 14

Materi Case studies: diffusional & diffusionless transformation

Media lcd

Referensi Porter, D.A., Easterling, K.E., Phase Transformation in Metals & Alloys, 2nd ed., Chapman & Hall, 1992

Aktivitas diskusi

Minggu 15

Materi Ujian Akhir Semester

Media

Referensi

Aktivitas Tertulis, tutup buku
