



Satuan Acara Pengajaran

MMM8110801 - Mekanika Material

Pengajar

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Tujuan Perkuliahan

Mahasiswa mampu memahami teori dan aplikasi metoda mekanika material mulai dari perilaku bahan dikenai bebam/gaya dan analisisnya untuk disain teknik dalam mencegah terjadinya kegagalan material.

Minggu 1

Materi Pendahuluan Penjelasan sistem, sasaran dan tujuan perkuliahan.
Jenis Kegagalan Material,
Disain dan seleksi material

Media LCD dan Papan Tulis

Referensi
1" Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall upper Saddle, New Yersey,USA 07458,2006
2 "Mechanics of Materials",E. J. Hearn,3 rd eddition,Butterworth-Heinemann, 1997

Aktivitas metode Mimbar dan diskusi

Minggu 2

Materi Survey of Engineering Material :
Ferrous dan Non Ferrous metalurgi
Polymer
Keramik dan Glas
Komposit Material

Media LCD dan Papan tulis

Referensi 1 " Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall
upper Saddle, New Jersey,USA 07458,2006
2 "Mechanics of Materials",E. J. Hearn,3 rd eddition,Butterworth-Heinemann, 1997

Aktivitas metode Mimbar dan Diskusi

Minggu 3

Materi Stuktur dan Deformasi dalam Material :
Ikatan dan struktur material
Deforamsi elastis dan Kekuatan teoritis
Deformasi Plastis

Media LCD dan Pa-pan Tulis

Referensi 1 " Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall
upper Saddle, New Jersey,USA 07458,2006
2 "Mechanics of Materials",E. J. Hearn,3 rd eddition,Butterworth-Heinemann, 1997

Aktivitas Metode Mimbar dan Diskusi

Minggu 4

Materi Review Mekanik Material :
Prinsip Tegangan dan Regangan
Bending
Torsi

Media LCD dan Papan Tulis

Referensi 1" Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall
upper Saddle, New Jersey, USA 07458, 2006
2 "Mechanics of Materials", E. J. Hearn, 3rd edition, Butterworth-Heinemann, 1997

Aktivitas Metode Mimbar dan Diskusi

Minggu 5

Materi Pengujian-pengujian Mekanik:
Pengujian Tarik, Tekan, Impak, Bending dan torsi

Media LCD dan Papan Tulis

Referensi 1" Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall
upper Saddle, New Jersey, USA 07458, 2006
2 "Mechanics of Materials", E. J. Hearn, 3rd edition, Butterworth-Heinemann, 1997

Aktivitas Metode mimbar dan diskusi

Minggu 6

Materi Yielding dan Fracture dalam Kombinasi Tegangan

Media LCD dan Papan Tulis

Referensi 1" Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall
upper Saddle, New Jersey, USA 07458, 2006
2 "Mechanics of Materials", E. J. Hearn, 3rd edition, Butterworth-Heinemann, 1997

Aktivitas Metode Mimbar dan Diskusi

Minggu 7

Materi UJIAN TENGAH SEMESTER

Media

Referensi

Aktivitas

Minggu 8

Materi Fracture of cracked members
Brittle and ductile fracture
Mathematical concepts
Fracture toughness testing

Media LCD dan Papan Tulis

Referensi 1 " Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall upper Saddle, New Yersey, USA 07458, 2006
2 "Mechanics of Materials",E. J. Hearn, 3 rd eddition, Butterworth-Heinemann, 1997

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Minggu 9

Materi Factice Toughness
Plastic zone dan Batas Platisitas pada LEFM
Testing Fracture Toughness

Media LCD dan Papan Tulis

Referensi 1 " Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall upper Saddle, New Yersey, USA 07458, 2006
2 "Mechanics of Materials",E. J. Hearn, 3 rd eddition, Butterworth-Heinemann, 1997

Aktivitas Metode Mimbar dan Diskusi

Minggu 10

Materi Fatigue Material Pendekatan dengan Tegangan:
Test Fatigue
Kurva Tegangan
Tegangan Rata-rata
Tegangan Multiaxial

Media LCD dan Papan Tulis

Referensi 1 " Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall upper Saddle, New Jersey, USA 07458, 2006
2 "Mechanics of Materials",E. J. Hearn, 3 rd eddition, Butterworth-Heinemann, 1997

Aktivitas Metode Mimbar dan Diskusi

Minggu 11

Materi Fatigue pada Notched Member
Pertumbuhan Retak Fatigue
Estimasi life for pembebanan amplitudo tetap/variable
Pertimbangan Design

Media LCD dan Papan Tulis

Referensi 1 " Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall upper Saddle, New Jersey, USA 07458, 2006
2 "Mechanics of Materials",E. J. Hearn, 3 rd eddition, Butterworth-Heinemann, 1997

Aktivitas Metode Mimbar dan Diskusi

Minggu 12

Materi Fatigue mendekati dengan Regangan
Kurva Regangan vs Life
Pengaruh Tegangan Rata-rata
Pengaruh Tegangan Multiaxial

Media LCD dan Papan Tulis

Referensi 1" Mechanical Behavior of Materials" ,3rd edition, Norman E. Dowling , Prentice-Hall upper Saddle, New Yersey, USA 07458, 2006
2 "Mechanics of Materials",E. J. Hearn, 3 rd eddition, Butterworth-Heinemann, 1997

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Minggu 13

Materi Review Fracture Mechanic dan Fatigue
Latihan-latihan Soal-soal.

Media LCD dan Papan Tulis

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2 "Mechanics of Materials",E. J. Hearn, 3 rd eddition, Butterworth-Heinemann, 1997

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Minggu 14

Materi UJIAN SEMESTER AKHIR

Media

Referensi

Aktivitas
