



Satuan Acara Pengajaran

ENMT800101 - Mekanika Material

Pengajar

Prof. Dr. Ir. Dedi Priadi DEA.

Tujuan Perkuliahan

Mahasiswa mampu memahami Teori dan aplikasi metoda mekanika material mulai dari perilaku bahan dikenai beban/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 Powerpoint

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Pengajar:
Menjelaskan materi dan memberikan contoh2 kasus kerusakan material, contoh disain dan seleksi material

Minggu 2

Materi ? Konsep Tegangan dan Regangan
- Model rheology
- Regangan elastis-plastis
- Creep deformation
? Latihan Soal: Tegangan-Regangan

Media Powerpoint

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Pengajar :
-menjelaskan materi dan memberikan latihan-latihan soal

Minggu 3

Materi Konsep Tegangan dan Regangan Campuran
- Tegangan bidang
- Tegangan 3 Dimensi
- Keadaan tegangan 2D dan 3D
Latihan Soal Tegangan-Regangan Campuran

Media Powerpoint

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Memberikan materi sesuai topik bahasan dilanjutkan pemberian latihan dan diskusi contoh soal

Minggu 4

Materi Pengujian2 Mekanik : Tarik, tekan, puntir, kekerasan, impak
Latihan soal

Media Power point

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Pemberian materi sesuai topik bahasan dan diskusi tugas

Minggu 5

Materi Pengujian2 Mekanik : Creep, Fatigue.
Latihan soal

Media Powerpoint

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas

Minggu 6

Materi Yielding and fracture under combined stresses
- Kriteria umum fracture
- Kriteria Tresca dan Von mises
- Kriteria luluh material anisotrop

Media Powerpoint

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Pemberian kuliah dan diskusi tugas yang diberikan

Minggu 7

Materi Latihan Soal: Yielding and fracture under combined stresses

Media Powerpoint

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Latihan soal dan diskusi dalam kelas

Minggu 8

Materi UJIAN TENGAH SEMESTER

Media

Referensi

Aktivitas

Minggu 9

Materi	Fracture of cracked members - Brittle and ductile fracture - Mathematical concepts - Fracture toughness testing
Media	Powerpoint
Referensi	1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993. 2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985
Aktivitas	Pemberian materi di kelas sesuai topik bahasn

Minggu 10

Materi	- Fatigue of materials - Fatigue crack growth
Media	Powerpoint
Referensi	1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993. 2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985
Aktivitas	Pemberian materi di kelas sesuai topik bahasan

Minggu 11

Materi	Lanjutan : Fatigue of materials Fatigue crack growth Latihan soal
Media	Powerpoint
Referensi	1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993. 2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985
Aktivitas	Lanjutan pemberian kuliah dan latihan soal dan diskusi

Minggu 12

Materi Plastic deformation behavior and models for materials
Stress strain analysis of plastically deforming members
Latihan soal

Media Powerpoint, membaca referensi

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Pemberian materi sesuai topik bahasan

Minggu 13

Materi Lanjutan:
Plastic deformation behavior and models for materials
Stress strain analysis of plastically deforming members
Latihan soal

Media Powerpoint dan membaca referensi

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Diskusi

Minggu 14

Materi Creep and damping
Latihan soal

Media Powerpoint

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Pemberian materi

Minggu 15

Materi Latihan soal materi Fatigue and Creep

Media Powerpoint

Referensi 1. Norman E. Dowling, Mechanical Behavior of Materials, Engineering methods for deformation, fracture and fatigue., Prentice Hall Intl.Editions.,1993.
2. E.J Hearn, Mechanics of Materials, Pergamon Press, 1985

Aktivitas Mahasiswa memaparkan tugas masing-masing

Minggu 16

Materi Ujian Tengah Semester

Media

Referensi

Aktivitas
