



Satuan Acara Pengajaran

MMS8120801 - Analisa Kerusakan + Lab

Pengajar

Prof. Dr. Ir. Dedi Priadi DEA.

Prof. Dr. Ir. Winarto M.Sc

Tujuan Perkuliahan

Mhs. Mampu Memahami & Menganalisa Kegagalan berbagai jenis Material dengan Teknik Analisa Kegagalan serta dapat mengetahui Prinsip Dasar Mekanika Perpatahan Material secara umum

Minggu 1

Materi	INTRODUKSI: <ul style="list-style-type: none">- Penjelasan SAP MK Perpatahan & FA- Aspek enjiniring Kegagalan & Analisanya- Sumber/Faktor Kegagalan Material. TEKNIK ANALISA KEGAGALAN-1 <ul style="list-style-type: none">- Tujuan Analisa Kegagalan- Tahapan dalam Analisa kegagalan- Uraian Skematis- Pengumpulan Data- Pengamatan Awal Patahan- NDT
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Media	LCD
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Referensi	1. Wulpi, D.J., 'Understanding How Components Fail?', ASM, 1988. 2. Brooks C R., Metallurgical Failure Analysis
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Aktivitas	Kuliah & Diskusi Tugas Kelompok
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Minggu 2

Materi	TEKNIK ANALISA KEGAGALAN-2 - Uji Mekanis (DT) - Fraktografi Makro dan Mikro - Metalografi - Analisa Jenis Perpatahan - Analisa Kimiawi - Analisa Data Pengujian, Kesimpulan dan Pembuatan Laporan STUDI KASUS DI KELAS (Bahas 2 Contoh Kasus)
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Media	LCD
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Referensi	1. Wulpi, D.J., 'Understanding How Components Fail?', ASM, 1988. 2. Brooks C R., Metallurgical Failure Analysis
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Minggu 3

Materi	JENIS PERPATAHAN - Distorsi - Patah Ulet (Ductile) - Patah Getas (Brittle) - Patah Fatik (Fatigue) STUDI KASUS LANJUTAN (Bahas 2 Contoh Kasus)
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Media	LCD
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Referensi	1. Wulpi, D.J., 'Understanding How Components Fail?', ASM, 1988. 2. Brooks C R., Metallurgical Failure Analysis
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Aktivitas	Kuliah & Diskusi Tugas Kelompok
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Minggu 4

Materi	LIBUR IDUL FITRI
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Media	
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Referensi

Aktivitas Bersalaman & Minta Maaf

Minggu 5

Materi Sistim Tegangan dan Residual Stress

Media LCD

Referensi 1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988.
2. Brooks C R., Metallurgical Failure Analysis

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Tugas Kelompok

Minggu 6

Materi Teori Mekanika Perpatahan & Aplikasinya

Media LCD

Referensi 1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988.
2. Brooks C R., Metallurgical Failure Analysis
3. Boyer, H.E.(Ed.), ?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992
4. Fellows, J.A.(Ed.), ?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992

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Tugas Kelompok

Minggu 7

Materi Tolls for Failure Analysis

Media LCD

- Referensi**
1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988.
 2. Brooks C R., Metallurgical Failure Analysis
 3. Boyer, H.E.(Ed.),?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992
 4. Fellows, J.A.(Ed.),?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992
 5. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol. 1
 6. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol . 2
 7. Stuart A. Shiels , ?Corrosion, Failure Analysis and Metallography?
 8. Stephens, R.I (Ed), ?Case Studies for Fatigue Education? ASTM PCN, STP 1250, 1994
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Tugas Kelompok

Minggu 8

Materi Perpatahan Akibat Keausan (wear)
STUDI KASUS DI KELAS (Bahas 2 Contoh Kasus)

Media LCD

- Referensi**
1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988.
 2. Brooks C R., Metallurgical Failure Analysis
 3. Boyer, H.E.(Ed.),?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992
 4. Fellows, J.A.(Ed.),?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992
 5. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol. 1
 6. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol . 2
 7. Stuart A. Shiels , ?Corrosion, Failure Analysis and Metallography?
 8. Stephens, R.I (Ed), ?Case Studies for Fatigue Education? ASTM PCN, STP 1250, 1994
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Aktivitas Kuliah & Diskusi
Tugas Kelompok

Minggu 9

Materi Perpatahan Akibat Kerapuhan (embrittlement)
STUDI KASUS LANJUTAN (Bahas 2 Contoh Kasus)

Media LCD

- Referensi**
1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988.
 2. Brooks C R., Metallurgical Failure Analysis
 3. Boyer, H.E.(Ed.),?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992
 4. Fellows, J.A.(Ed.),?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992
 5. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol. 1
 6. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol . 2
 7. Stuart A. Shiels , ?Corrosion, Failure Analysis and Metallography?
 8. Stephens, R.I (Ed), ?Case Studies for Fatigue Education? ASTM PCN, STP 1250, 1994
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Minggu 10

Materi Perpatahan Akibat Proses Heat Treatment
STUDI KASUS LANJUTAN (Bahas 2 Contoh Kasus)

Media LCD

- Referensi**
1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988.
 2. Brooks C R., Metallurgical Failure Analysis
 3. Boyer, H.E.(Ed.),?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992
 4. Fellows, J.A.(Ed.),?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992
 5. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol. 1
 6. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol . 2
 7. Stuart A. Shiels , ?Corrosion, Failure Analysis and Metallography?
 8. Stephens, R.I (Ed), ?Case Studies for Fatigue Education? ASTM PCN, STP 1250, 1994
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Tugas Kelompok

Minggu 11

Materi Perpatahan Akibat Proses Creep
STUDI KASUS LANJUTAN (Bahas 2 Contoh Kasus)

Media LCD

- Referensi**
1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988.
 2. Brooks C R., Metallurgical Failure Analysis
 3. Boyer, H.E.(Ed.),?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992
 4. Fellows, J.A.(Ed.),?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992
 5. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol. 1
 6. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol . 2
 7. Stuart A. Shiels , ?Corrosion, Failure Analysis and Metallography?
 8. Stephens, R.I (Ed), ?Case Studies for Fatigue Education? ASTM PCN, STP 1250, 1994
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Aktivitas Kuliah & Diskusi
Tugas Kelompok

Minggu 12

Materi Perpatahan Akibat Tegangan Sisa (Residual Stress)
Studi Kasus & Analisa Permasalahan FA

Media LCD

- Referensi**
1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988.
 2. Brooks C R., Metallurgical Failure Analysis
 3. Boyer, H.E.(Ed.),?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992
 4. Fellows, J.A.(Ed.),?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992
 5. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol. 1
 6. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol . 2
 7. Stuart A. Shiels , ?Corrosion, Failure Analysis and Metallography?
 8. Stephens, R.I (Ed), ?Case Studies for Fatigue Education? ASTM PCN, STP 1250, 1994
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Aktivitas Kuliah & Diskusi
Tugas Kelompok

Minggu 13

Materi Studi Kasus & Pembahasan Permasalahan FA

Media LCD

Referensi	<ol style="list-style-type: none"> 1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988. 2. Brooks C R., Metallurgical Failure Analysis 3. Boyer, H.E.(Ed.), ?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992 4. Fellows, J.A.(Ed.), ?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992 5. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol. 1 6. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol . 2 7. Stuart A. Shiels , ?Corrosion, Failure Analysis and Metallography? 8. Stephens, R.I (Ed), ?Case Studies for Fatigue Education? ASTM PCN, STP 1250, 1994
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Aktivitas	PRESENTASI TIAP GROUP
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Minggu 14

Materi	PRESENTASI TIAP GROUP
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Media	LCD
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Referensi	<ol style="list-style-type: none"> 1. Wulpi, D.J., ?Understanding How Components Fail?, ASM, 1988. 2. Brooks C R., Metallurgical Failure Analysis 3. Boyer, H.E.(Ed.), ?Failures Analysis & Prevention? Metal Handbook, 8th Ed. Vol. 11, ASM, 1992 4. Fellows, J.A.(Ed.), ?Fractography & Atlas Fractography? Metal Handbook, 9th Ed. Vol. 12, ASM, 1992 5. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol. 1 6. Khlefa A. Esaklul , ?Hand Book Of Case Histories In Failure Analysis? Vol . 2 7. Stuart A. Shiels , ?Corrosion, Failure Analysis and Metallography? 8. Stephens, R.I (Ed), ?Case Studies for Fatigue Education? ASTM PCN, STP 1250, 1994
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Aktivitas	PRESENTASI GROUP
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Minggu 15

Materi	Final Examination (UAS)
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Media	Paper
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Referensi	
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Aktivitas	UAS
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