



Satuan Acara Pengajaran

ENMT801104 - Mekanika Material

Pengajar

Jaka Fajar Fatriansyah Ph.D.

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Minggu 1

Materi Introduction
- Types of Materials Failure
- Technological Challenge and Economic of Fracture
- Materials Selection for Engineering Component

Media - LCD Projector
- White Board

Referensi Norman E. Dowling, Mechanical Behavior of Materials, Engineering Methods for Deformation Fracture and Fatigue (NED)
Chapter 1.1,1.2,1.3,1.4,1.5,3.8

Aktivitas

Minggu 2

Materi Mechanical Testing of Materials
- Tension Testing
- Stress Strain Properties
- Trends in Tensile Behavior

Media - LCD Projector
- White Board

Referensi NED Chapter 4.1, 4.2, 4.3, 4.4

- Aktivitas**
- Lecture Talk
 - Discussion
-

Minggu 3

- Materi**
- Stress Strain Relationship and Behavior
 - Models for Deformation Behavior
 - Elastic Deformation
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- Media**
- LCD Projector
 - White Board
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Referensi NED Chapter 5.1, 5.2, 5.3

- Aktivitas**
- Lecture Talk
 - Discussion
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Minggu 4

- Materi**
- States of Stress and Strain
 - Plane Stress
 - Principal Stress
 - Three Dimensional States of Stress
 - Stresses on the Octahedral Plane
 - Complex States of Strain
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- Media**
- LCD Projector
 - White Board
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Referensi NED Chapter 6.1, 6.2, 6.3, 6.4, 6.5, 6.6

- Aktivitas**
- Lecture Talk
 - Discussion
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Minggu 5

- Materi**
- Yielding and Fracture under Combined Stresses
 - General Form of Failure Criteria
 - Maximum Normal Stress Fracture Criterion
 - Maximum Shear Stress Yield Criterion
 - Octahedral Shear Stress Yield Criterion
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- Media**
- LCD Projector
 - White Board
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Referensi NED Chapter 7.1, 7.2, 7.3, 7.4, 7.5, 7.6

Aktivitas - Lecture Talk
- Discussion

Minggu 6

Materi Fracture Mechanics
- Preliminary Discussion
- Mathematical Concepts
- Application of K to Design and Analysis
- Fracture Toughness Values and Trends

Media - LCD Projector
- White Board

Referensi NED Chapter 8.1, 8.2, 8.2, 8.4, 8.5, 8.6

Aktivitas - Lecture Talk
- Group Discussion

Minggu 7

Materi REVIEW (Mid Term Preparation)

Media - LCD Projector
- White Board

Referensi - NED Chapter 1, 4, 6, 7, 8

Aktivitas - Lecture

Minggu 8

Materi MIDTERM TEST

Media

Referensi

Aktivitas

Minggu 9

Materi Fatigue of Materials
- Definitions and Concepts
- Sources of Cyclic Loading

Media - LCD Projector
- White Board

Referensi NED Chapter 9.1, 9.2, 9.3

Aktivitas - Lecture Talks
- Discussion

Minggu 10

Materi Fatigue Crack Growth
- Preliminary Discussion
- Fatigue Crack Growth Rate Testing
- Effect of R on Fatigue Crack Growth
- Trends in Fatigue Crack Growth Behavior
- Life Estimates for Constant Amplitude Loading
- Design Consideration
- Environmental Crack Growth

Media - LCD Projector
- White Board

Referensi NED Chapter 11.1, 11.2, 11.3, 11.4, 11.5, 11.6, 11.8, 11.10

Aktivitas - Lecture Talk
- Discussion

Minggu 11

Materi Creep and Damping
- Introduction
- Creep Testing
- Physical Mechanism of Creep
- Life Estimates

Media - LCD Projector
- White Board

Referensi NED Chapter 15.1, 15.2, 15.3, 15.4

Aktivitas - Lecture Talk
- Discussion

Minggu 12

Materi Special Topics on Mechanical Behavior of Materials

Media - LCD Projector

Referensi Related Textbooks and Articles

Aktivitas - Group Presentation
- Discussion
- Lecture Talk

Minggu 13

Materi Special Topics of Mechanical Behavior of Materials

Media LCD Projector

Referensi Related Textbooks and Articles

Aktivitas - Group Presentation
- Discussion
- Lecture Talk

Minggu 14

Materi REVIEW (Final Term Preparation)

Media - LCD Projector
- White Board

Referensi NED Chapter 9, 11, 15

Aktivitas - Lecture Talk
- Discussion
