



# Satuan Acara Pengajaran

ENMT801104 - Mekanika Material

Pengajar

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## Minggu 1

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

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**Media** - LCD Projector  
- White Board

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**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

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**Aktivitas**

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## Minggu 2

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

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**Media** - LCD Projector  
- White Board

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**Referensi** NED Chapter 4.1, 4.2, 4.3, 4.4

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- Aktivitas**
- Lecture Talk
  - Discussion
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### Minggu 3

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- 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

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- Aktivitas**
- Lecture Talk
  - Discussion
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### Minggu 4

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- 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

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- Aktivitas**
- Lecture Talk
  - Discussion
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### Minggu 5

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- 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

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**Aktivitas** - Lecture Talk  
- Discussion

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## Minggu 6

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

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**Media** - LCD Projector  
- White Board

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

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**Aktivitas** - Lecture Talk  
- Group Discussion

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## Minggu 7

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**Materi** REVIEW (Mid Term Preparation)

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**Media** - LCD Projector  
- White Board

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

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**Aktivitas** - Lecture

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## Minggu 8

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**Materi** MIDTERM TEST

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**Media**

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**Referensi**

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**Aktivitas**

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## Minggu 9

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

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**Media** - LCD Projector  
- White Board

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**Referensi** NED Chapter 9.1, 9.2, 9.3

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**Aktivitas** - Lecture Talks  
- Discussion

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## Minggu 10

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**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

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**Media** - LCD Projector  
- White Board

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

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**Aktivitas** - Lecture Talk  
- Discussion

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## Minggu 11

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

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**Media** - LCD Projector  
- White Board

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**Referensi** NED Chapter 15.1, 15.2, 15.3, 15.4

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**Aktivitas** - Lecture Talk  
- Discussion

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## Minggu 12

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**Materi** Special Topics on Mechanical Behavior of Materials

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**Media** - LCD Projector

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**Referensi** Related Textbooks and Articles

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**Aktivitas** - Group Presentation  
- Discussion  
- Lecture Talk

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## Minggu 13

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**Materi** Special Topics of Mechanical Behavior of Materials

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**Media** LCD Projector

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**Referensi** Related Textbooks and Articles

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**Aktivitas** - Group Presentation  
- Discussion  
- Lecture Talk

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## Minggu 14

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**Materi** REVIEW (Final Term Preparation)

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**Media** - LCD Projector  
- White Board

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**Referensi** NED Chapter 9, 11, 15

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**Aktivitas** - Lecture Talk  
- Discussion

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