

# Fracture Mechanics and Fatigue (CIEE 726 / IMSC 027)

Semester Syllabus

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## Part 1: Course Information

### Instructor Information

Instructor: Prof. KOU Kun Pang

E-mail: kpkou@umac.mo

### Course Description

Linear elastic fracture mechanics, Concept of Stress intensity factor, Correction factors of stress intensity factor, Numerical methods for stress intensity factor determination, Introduction to the elastic plastic fracture mechanics. Assessment of residual life of structural members.

### Prerequisite

None

### Course Duration

42 contact hours, 3 hours per week (3-credit course)

**Credit:** 3

**Compulsory/elective course:** Elective

## Part 2: Course Objectives

The objectives of this course are to provide a comprehensive understanding of linear elastic fracture mechanics e.g. stress intensity factor, correction factors of stress intensity factor for different crack configuration and loading conditions, numerical methods for stress intensity factor determination, and an introduction to the elastic plastic fracture mechanics. Based on the knowledge of fracture mechanics, assessment of residual life of structural members under fatigue loading will be carried out.

## Part 3: Major Assessment Methods

Homework:	20%
Midterm exam:	35%
Final exam:	45%