



ACADEMIC SENATE FOR CALIFORNIA COMMUNITY COLLEGES

Using Open Educational Resources to Design Unique Engineering Course Materials

Thursday March 26, 2026; 2 – 3 pm

This work is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).

Welcome!

- On behalf of the ASCCC OERI, we are pleased to have you here with us for “Using Open Educational Resources to Design Unique Engineering Course Materials”
- If you are not already muted, please mute yourself upon arrival.
- Please note that you are encouraged to use the Zoom “chat” feature for questions and comments.
- You’re invited to introduce yourself in the chat – please provide your name, college, discipline/role
- This event will be recorded. Archives of all ASCCC OERI events are available at asccc-oeri.org > [Webinars and Events](#)

Introductions

Tricia Foley, Ph.D.

- Engineering Faculty, College of the Canyons
- OERi Discipline lead for Engineering

Please introduce yourself in the chat:

- Name and College
- Role
- Where are you on your OER journey?

0



5

I'm brand new!

I've been using OER for years!



Tricia Foley, Engineering Faculty

Today's Agenda

1. Why OER?
2. The 5 Rs of OER
3. Customizing an Engineering Statics course with OER – a Case Study
4. Finding Resources for Your Class
5. Open Discussion

What is OER?

Creative Commons defines OER as teaching, learning, and research materials that are either (a) in the public domain or (b) licensed in a manner that provides everyone with free and perpetual permission to engage in the 5R activities— retaining, remixing, revising, reusing and redistributing the resources.

-- [Creative Commons](#)

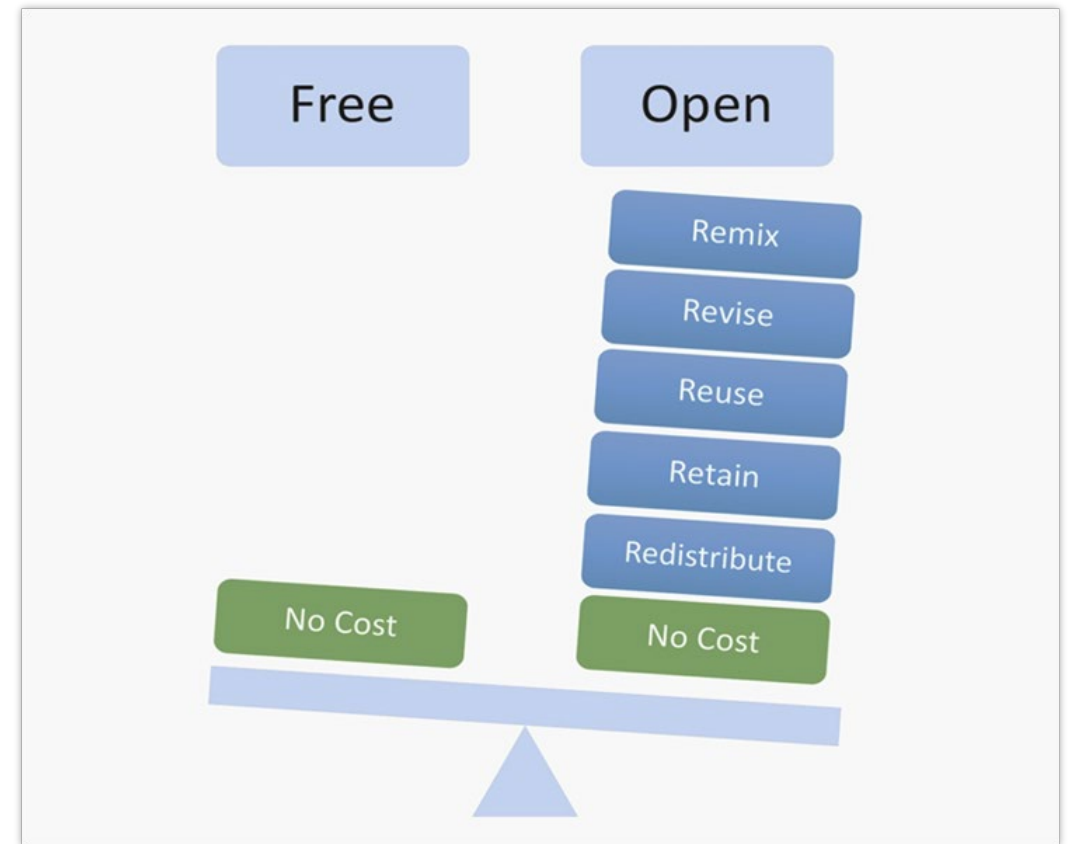


Image by [Designers for Learning: Gain Experience for Good](#),
[Jennifer Maddrell, Director](#) licensed under [CC BY-NC-SA](#)

Why OER?

1. Cost
2. Always Available
3. Contain Correct Information
4. Free to Engage in 5 Rs

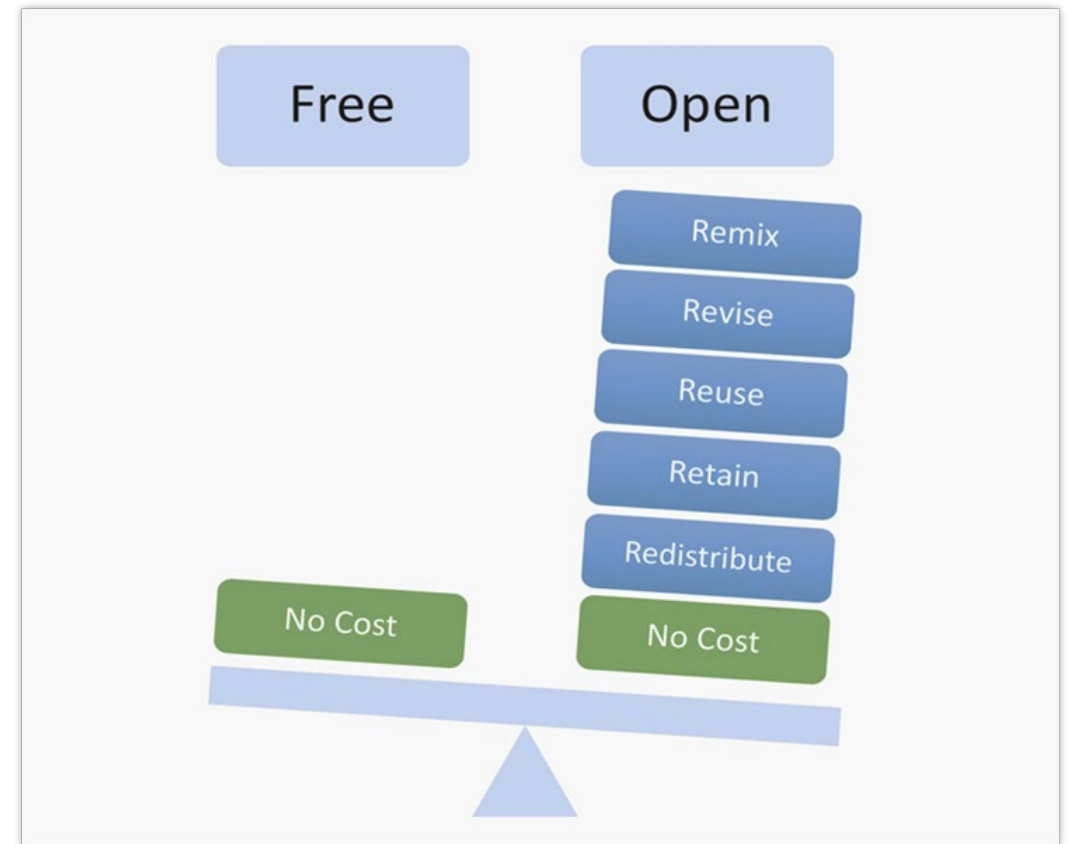


Image by [Designers for Learning: Gain Experience for Good](#),
[Jennifer Maddrell, Director](#) licensed under [CC BY-NC-SA](#)

The 5R Permissions of OER

Retain

Make and own copies

Reuse

Use in a wide range of ways

Revise

Adapt, modify, and improve

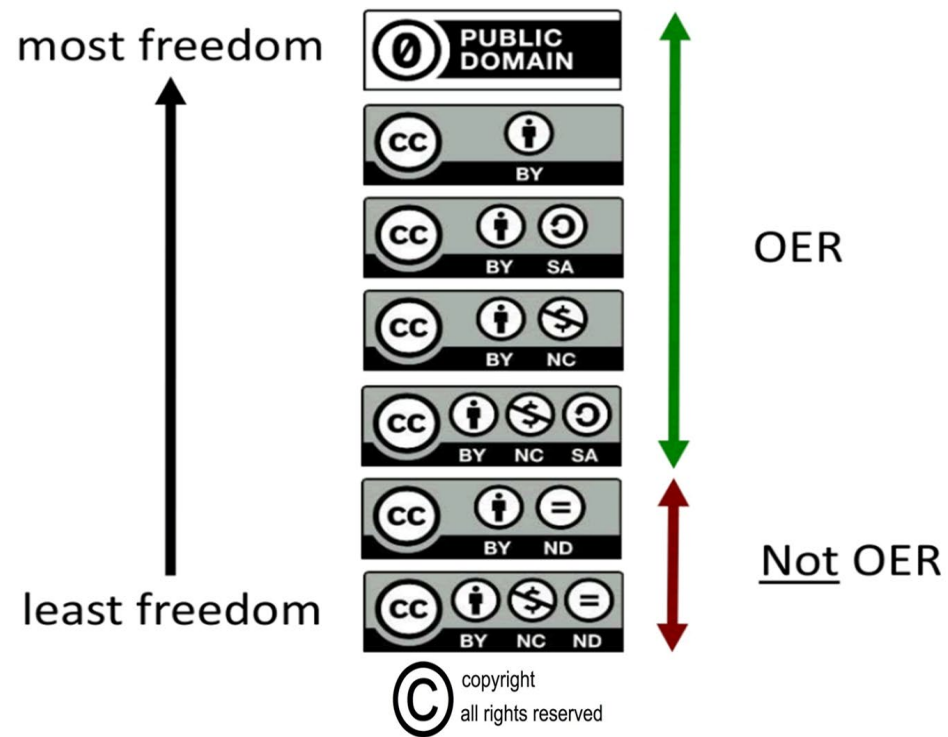
Remix

Combine two or more

Redistribute

Share with others

OER Licenses



[Creative Commons Licenses](#) by Cable Green licensed under [CC BY 4.0](#) and
[All Rights Reserved Sign](#) by [All Ygraph.com](#) licensed under [CC BY 3.0](#)

ZTC Degrees – the Motivation

- Students spend \$1240/year on textbooks and supplies¹
- 66% of students avoid buying course materials due to steep prices²
- State allocated \$115 Million investment in developing ZTC pathways³

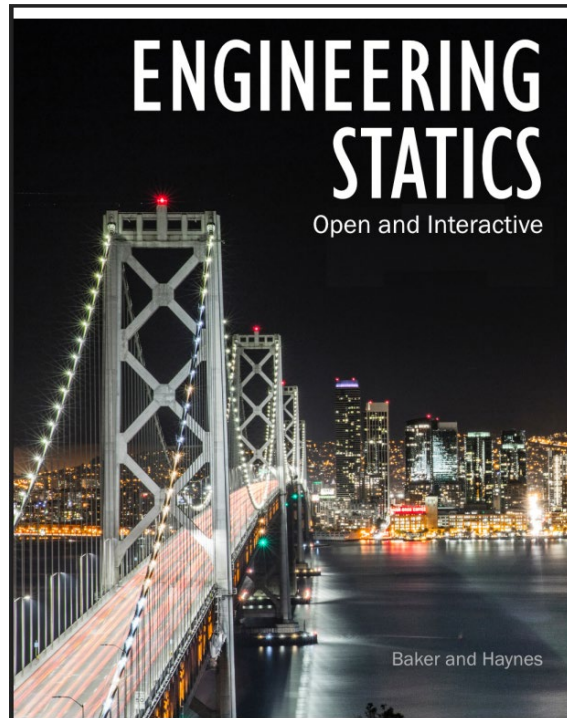


Photo by [silviarita](#), accessed on Plixabay

1. College Board, Trends in College Pricing and Student Aid 2021, Figure CP-1
2. Hanson, Melanie. “Average Cost of College Textbooks” EducationData.org, August 12, 2021
3. AB 132

A Case Study: Teaching Engineering Statics with OER

Textbook



Homework

myOpenMath

Welcome

Free and Open

Students

Are you a student looking to study mathematics on your own, and want to do exercises with immediate feedback as you work through a free and open textbook? Then read more about our [self study courses](#).

Instructors

Are you an instructor who wants to adopt an open textbook, who feels online interactive homework is valuable, but doesn't want their students to have to pay an additional fee? Then read more about [using MyOpenMath in the classroom](#).

Getting Started

If you already have an account, you can log on using the box to the right.

If you are a new student to the system, [register as a new student](#)

If you are an instructor, you can [request an instructor account](#)

Login

Username:

Password:

Login

[Register as a new student](#)

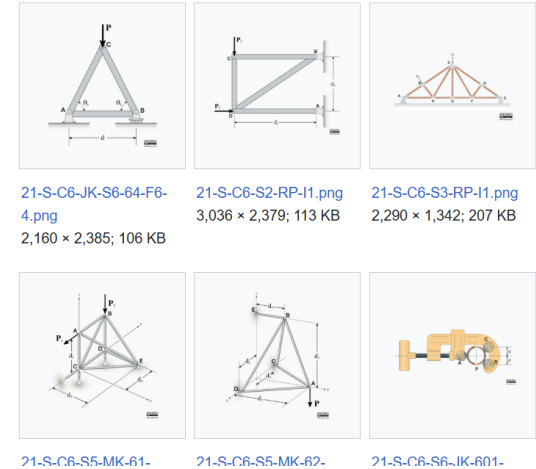
[Forgot Password](#)
[Forgot Username](#)

Images

Media in category "OER Mechanics Images by UBC Engineering and Douglas College Physics and Astronomy"

The following 200 files are in this category, out of 1,580 total.

(previous page) (next page)



OER Textbook – Engineering Statics

Written by Dan Baker (Colorado State) and William Haynes (Mass. Maritime Academy)

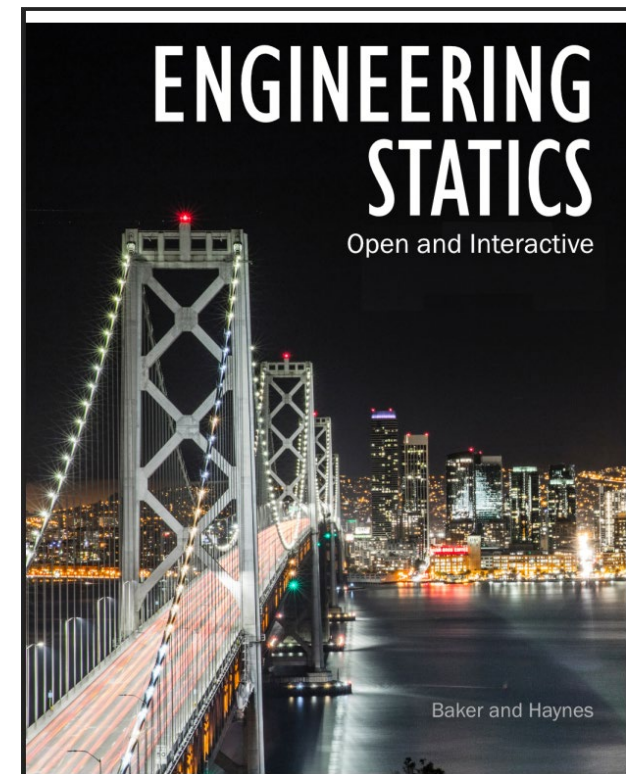
Advantages:

- Covers required topics for C-ID ENGR 230
- Interactive Exercises
- YouTube library of examples from Dr. Dan

Limitations:

- Limited number of worked examples
- # homework problems is limited

<https://engineeringstatics.org/>



OER Textbook – Mechanics Map

Written by Jacob Moore (Penn State)

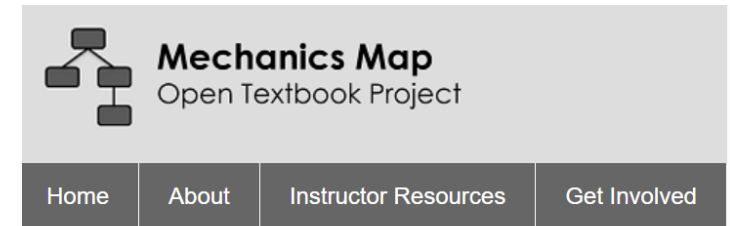
Advantages:

- Covers most topics in Statics
- Video exercises

Limitations:

- Limited number of worked examples
- # homework problems is limited

<https://mechanicsmap.psu.edu/>



Welcome to the Mechanics Map Digital Te

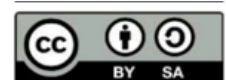
The Mechanics Map is an open textbook for engineering statics, providing written explanations, video lectures, worked examples, and homework problems. The content is licensed under a Creative Commons Share-alike license, so you can remix the content. The table of contents below links to all available content. The Instructor Resources, and Get Involved tabs provide information more about the project in general.

Mechanics Basics:

1. Newtonian Mechanics Basics:

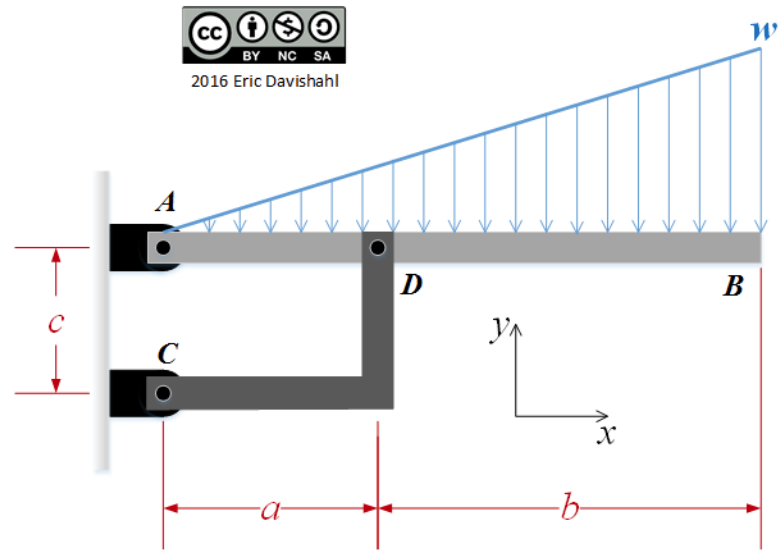
[Newtonian Mechanics Video Introduction](#)

[1.1 Bodies](#)



MyOpenMath – Online Homework Program

A triangular distributed load of max intensity $w = 400 \text{ N/m}$ acts on beam AB . The beam is supported by a pin at A and member CD , which is connected by pins at C and D respectively. Determine the reaction forces at A and C . Enter your answers in Cartesian components. Assume the masses of both beam AB and member CD are negligible.



Values for dimensions on the figure are given in the following table. Note the figure may not be to scale.

Variable	Value
a	6.20 m
b	11.2 m
c	4.34 m

The reaction at A is $\vec{A} = \text{[input]} \hat{i} + \text{[input]} \hat{j} \text{ N}$.

The reaction at C is $\vec{C} = \text{[input]} \hat{i} + \text{[input]} \hat{j} \text{ N}$.

Designed by David Lippman + Math Faculty

Advantages

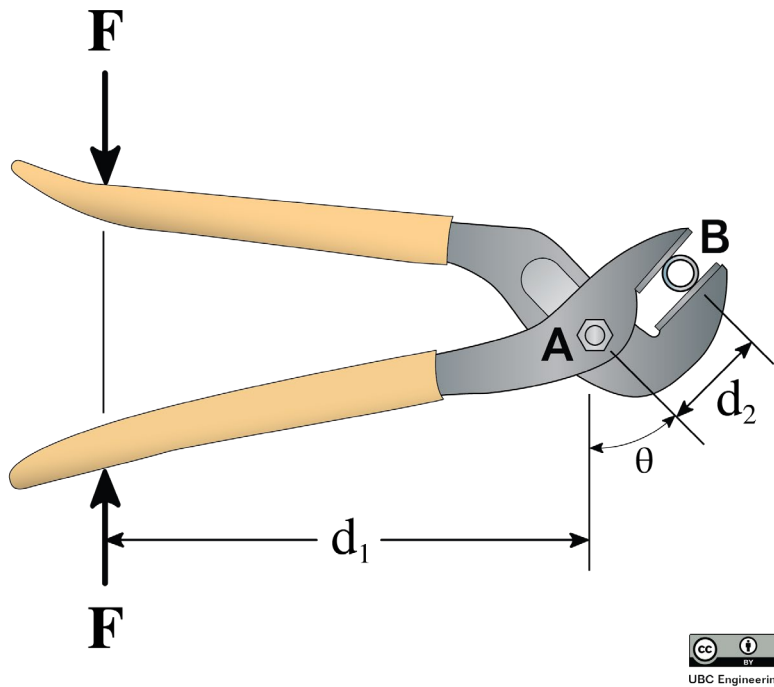
- Algorithmic questions banks for Statics, Dynamics
- Can be integrated into Canvas
- Strong support community for writing your own questions

Disadvantages

- Need to verify questions (~300 for statics)
- Writing questions requires some coding skills

<https://www.myopenmath.com/>

OER Mechanics Images by UBC Engineering and Douglas College Physics and Astronomy



Created by Brina Schenk at University of British Columbia and Douglas College

Advantages

- >1500 images for statics + dynamics courses
- Can easily edit
- Example problems for images available

Disadvantages

- Images only - May need to write own problem
- Difficult to search 1500+ images

What else is out there?






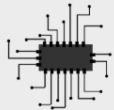






Open Textbooks for Engineering

Search this Guide Search

- Home
- General Engineering
- Agricultural
- Biomedical
- Chemical
- Civil
- Electrical & Computer
- Energy
- Environmental
- Manufacturing, Industrial & Systems
- Materials Science
- Mechanical
- Petroleum and Mining & Geological Engineering

Engineering Disciplines

Our listing of open textbooks is organized by engineering discipline. To browse resources within a discipline, select the appropriate icon below. Note that some specific disciplines have been grouped within a larger discipline (e.g., transportation engineering texts can be found in civil & environmental engineering). If you don't find a needed discipline, try the search icon, which will connect you to the Mason OER Metafinder search engine.

 General	 Agricultural	 Biomedical	 Chemical
 Civil	 Electrical & Computer	 Energy	 Environmental
			

<https://libguides.lib.fit.edu/OEREng/home>

What else is out there?

Contents

LibreTexts™
ENGINEERING

Enter Reader Mode

How can we help you?

Sign in

Contents Home » Bookshelves

Bookshelves

Donate

This central Bookshelves area in this LibreTexts Library holds texts that are curated by the LibreTexts Development team and can be used either directly or as content for building customized remixes (i.e., texts that are generated from existing content often with customized editing and/or content interspersed) for use in Course Shells housed in [Campus Bookshelves](#). For details on how to have a text added to the bookshelves or how to remix content into your customized remix contact us at info@libretexts.org.

Artificial Intelligence

Introductory Engineering

Aerospace Engineering

?

<https://eng.libretexts.org/Bookshelves>

OER Availability for C-ID Courses (My Impressions)

ENGR 140
Engineering Materials

ENGR 110
Intro to Engineering

ENGR 130
Statics

ENGR 240
Strength of Materials

ENGR 150
Engineering Graphics

ENGR 220*
Programming in MATLAB

ENGR 180
Surveying

ENGR 230
Dynamics

ENGR 260
Electrical Circuits

ENGR 120
Intro to Programming



Limited OER

Many OERs

Open Discussion

Are there OERs that you use?

What OERs are you looking for?

Other thoughts?