



香港科技大學

THE HONG KONG UNIVERSITY OF
SCIENCE AND TECHNOLOGY



ELSEVIER

Knovel Database Training

-applying in scientific research and learning

Knovel supports academic research and education programs



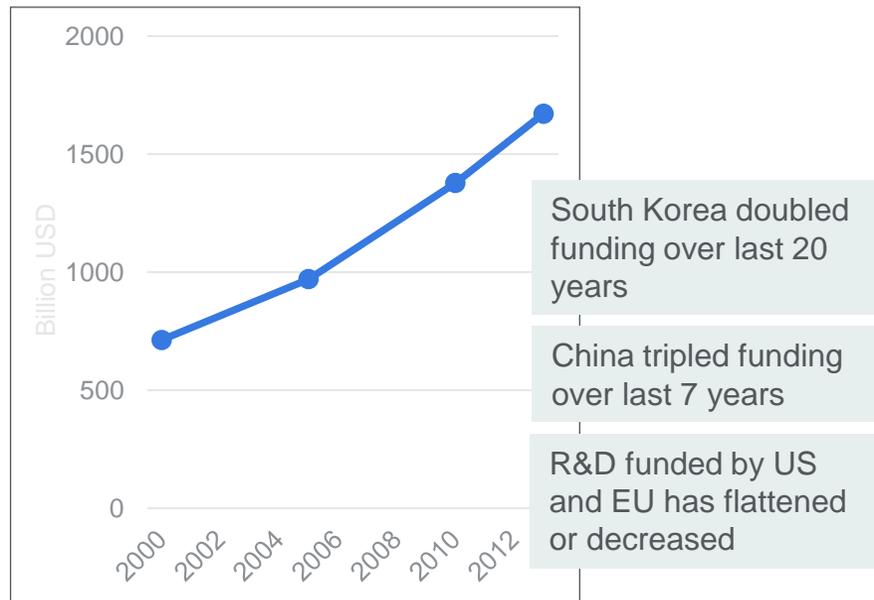
Knovel

Database Introduction

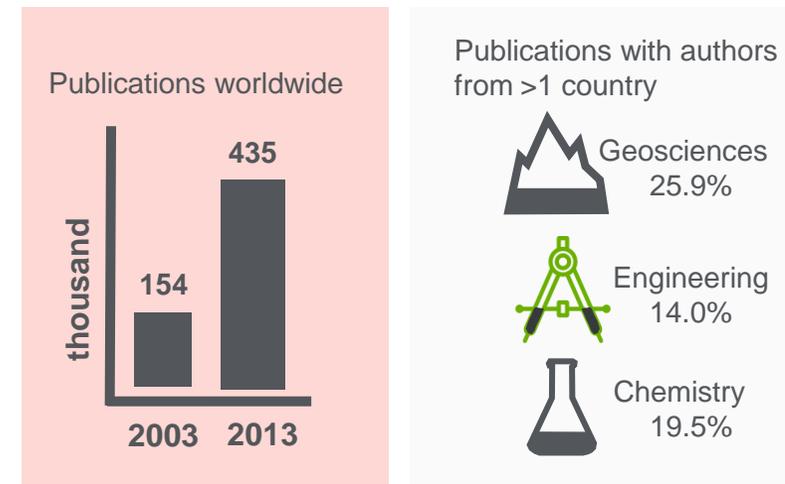


Academic research is increasing international, collaborative and challenging

Global R&D expenditure in science & engineering is rising, with sources shifting to Asia



Engineering publications output is rising and increasingly international

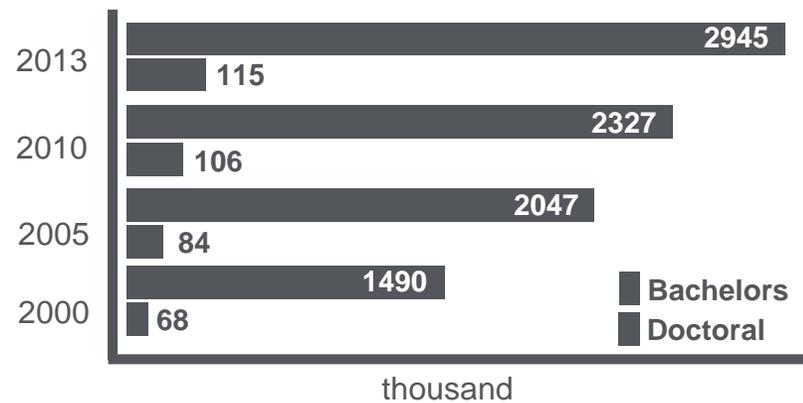


Engineers must ensure the relevance of their research and academic programs to remain competitive in an international landscape

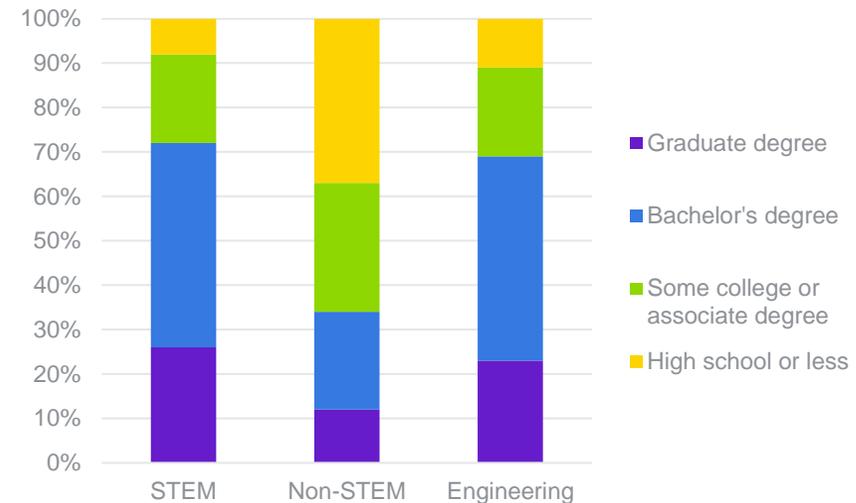
Engineers must remain abreast with global technology and seek potential collaborators

Concurrently, engineering teaching programs are asked to produce more graduates

Number of degrees granted in science and engineering worldwide is growing



In the US, nearly 90% of employed engineers have an associate degree or higher

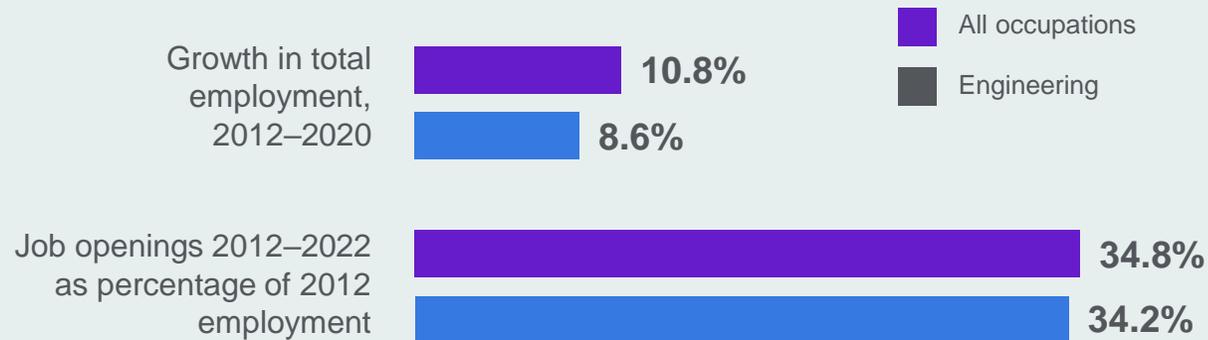


Educators must prepare students with all skills necessary to succeed in an engineering career

And graduates must succeed in a highly competitive job market

The engineering job market is growing slowly compared to all occupations, powered primarily by position replacements

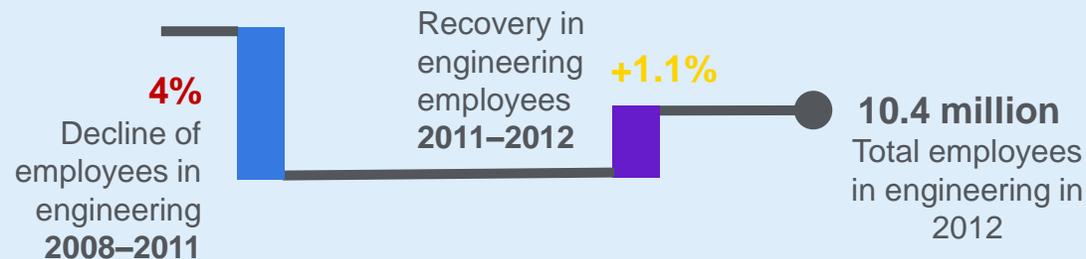
Projections of US employment and job openings in engineering 2012–2022



4 of 5

engineering job openings in US between 2012 and 2022 will be a replacement, not a new position.

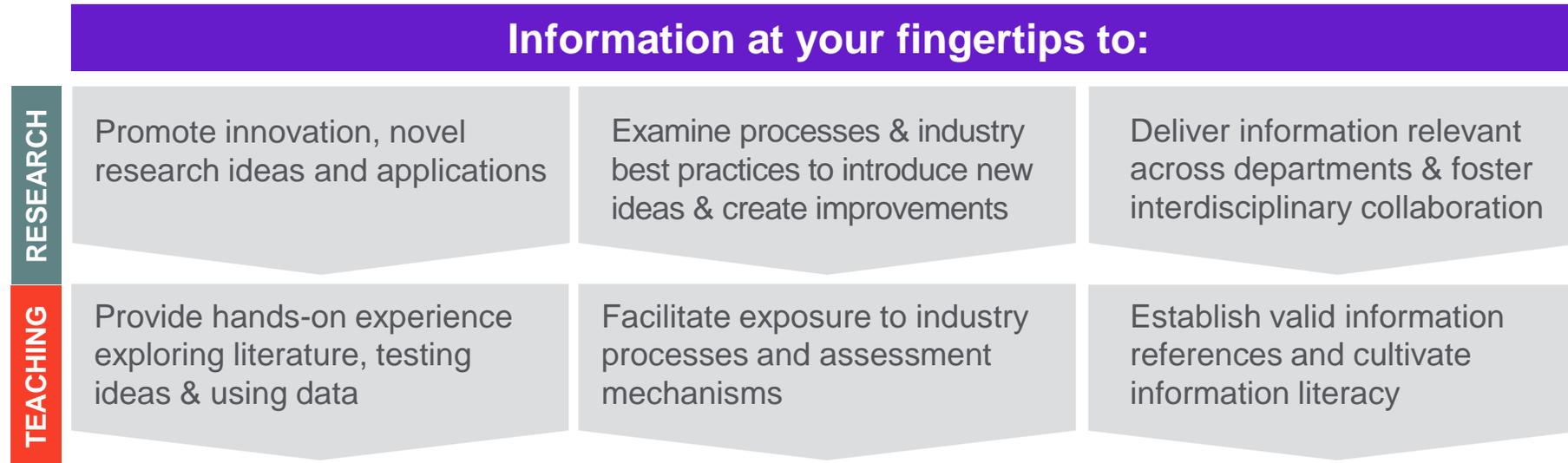
Labor statistics from EU (27 countries)



Only 17%

engineering employees in Europe are under 30 years of age.

Easily accessible information, data, answers & insights is the key to impactful research and education



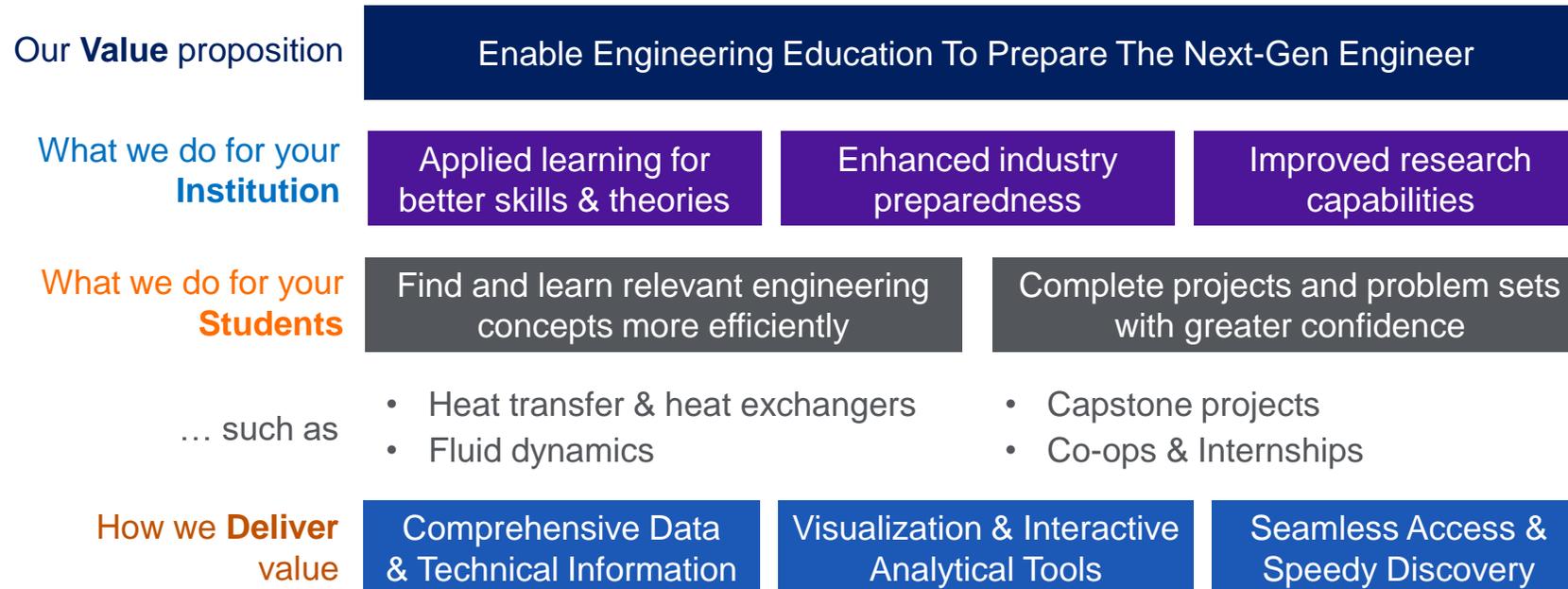
Knovel®

Knovel brings current and targeted information to engineers and supports the preparation of future generations with **up-to-date knowledge and real-world skills development.**

What is Knovel?

A technical reference solution that quickly delivers trusted, accessible and relevant engineering answers & insights, to accelerate foundational engineering knowledge, build expertise and better prepare for a career in Engineering – in research as well as in industry.

Over 9,000 Resources, more than 74 Million Answers



What is Knovel?

Simply the best way to empower engineers to solve problems.

A uniquely structured database and information tool with:



Content from 140+ trusted engineering sources, curated for industry needs



Actionable data for the analysis and selection of materials & substances



Interactive data and analytical tools for direct problem solving and validations



Powerful search capabilities & taxonomy-based filters to get targeted results



Mobile access and connections with engineering software and other information discovery platforms



ELSEVIER

WHO IS USING KNOVEL?



>15 years on the market



700+ Clients in industry, academia and government worldwide

TOP

10

Engineering firms in Chemistry, Oil & Gas, Aerospace & Defense, and Engineering Design & Construction

TOP

20

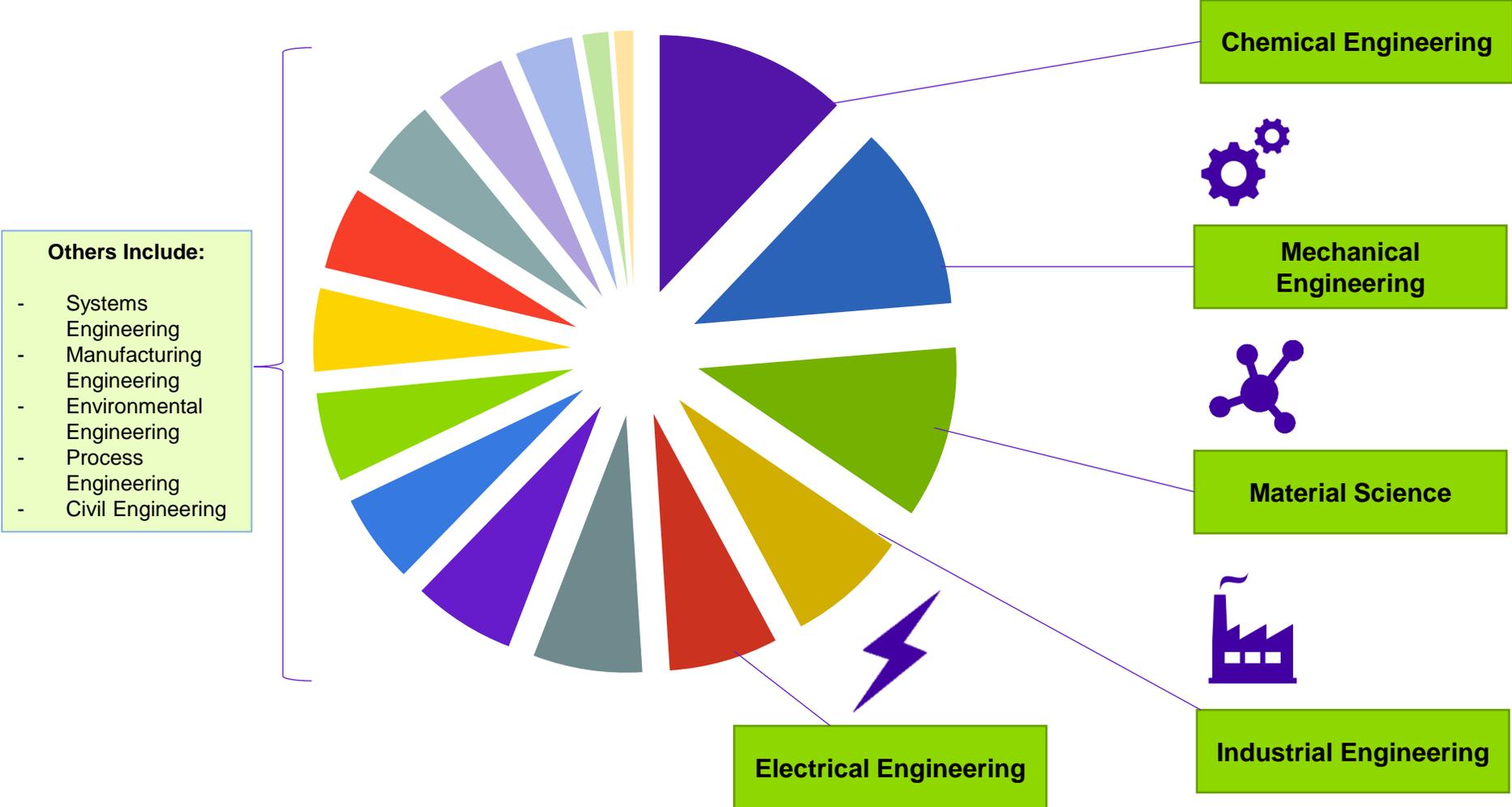
World's best Engineering & Technology Universities



* Includes Petroleum, Aerospace, Materials, Nuclear, Software, Manufacturing, and Environmental Engineers

Knovel's Academic Users Leverage Inter-Disciplinary Engineering-Related Answers & Insights To Drive Education & Research

What disciplines do Knovel users leverage in their research, studies, and teaching?



Knovel Helps Engineers Make Impact in Research & Education

According to our academic users, the top 5 areas that Knovel helps make an impact are in:



- Gaining background information on an engineering topic



- Performing a literature review



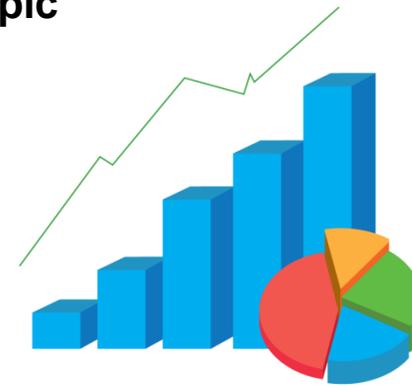
- Completing assignments for a course



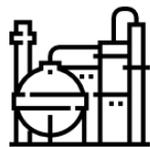
- Staying informed about advances in my field



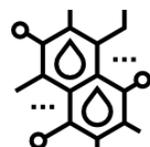
- Defining research objectives



Prepare students for their careers by infusing a tool into the curriculum that is used widely by Industry



OIL & GAS



CHEMICALS



ENGINEERING,
DESIGN &
CONSTRUCTION



AEROSPACE
& DEFENSE

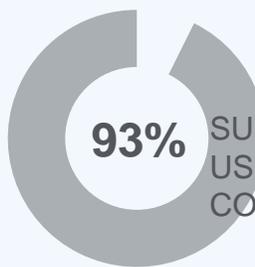


EQUIPMENT
MANUFACTURING



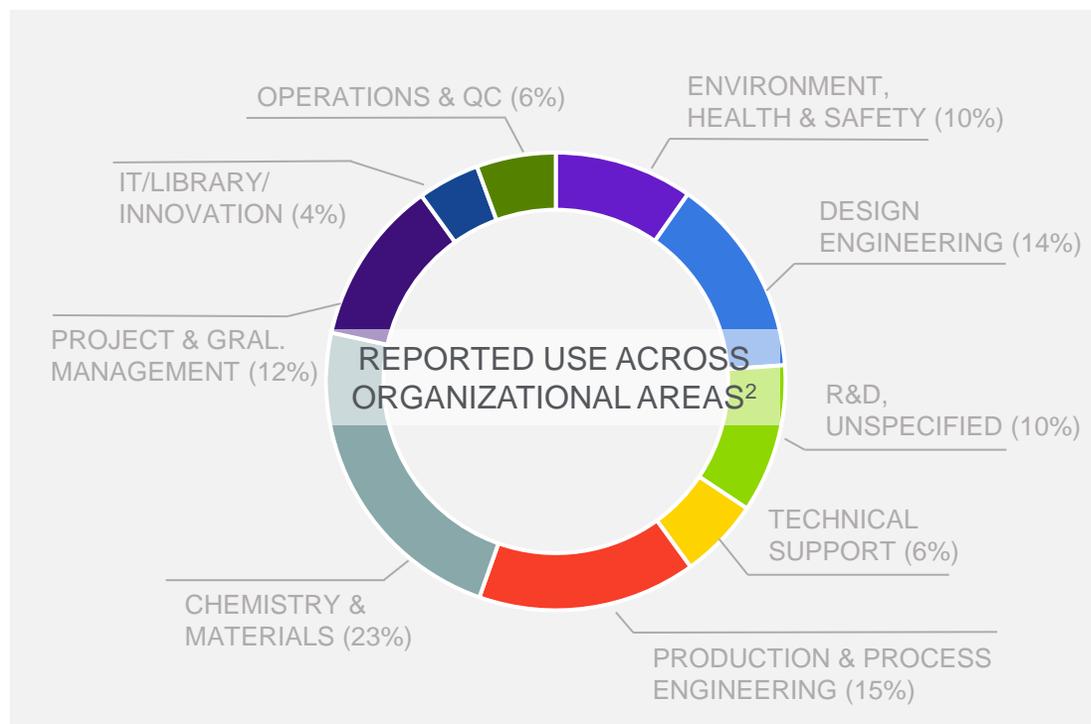
86%

SURVEYED INDUSTRY
USERS CONSULT KNOVEL
AT LEAST MONTHLY¹



93%

SURVEYED INDUSTRY
USERS RECOMMEND
CONTINUED SUBSCRIPTION¹





Knovel

User Guide

 1. Create a User Account

 2. Search

 3. Key Features

 4. Find Help and Support



Knovel

<p>What Knovel gives you >>></p>	<p>ESSENTIAL ANSWERS</p> 	<p>ACCELERATED DISCOVERY</p> 	<p>CONTINUOUS ACCESS</p> 	
<p>How Knovel delivers >>></p>	<ul style="list-style-type: none"> • Access Reference titles, Interactive Equations, Graphs & Tables & More with content from over 150 international content providers • Easily Manipulate & Use Data – within Knovel • Personalize your Knovel experience – Save your Notes, Searches, Titles, Data, Alerts – and Share with your colleagues 	<ul style="list-style-type: none"> • Smart Search capabilities that understand the engineering language • Search results filtering based on Engineering concepts to find what you need – Fast! • Choose the Type of Search you need – Material Property Search, Advanced Search or KDA 	<ul style="list-style-type: none"> • Mobile App (IOS & Android): Offline access to your selected reference resources • Seamless use with Excel add-in and software plug-ins (Inventor, Revit) • Enhanced Discoverability through EBSCO, SUMMON & PRIMO 	
<p>What you can do with Knovel >>></p>	<p>Learn:</p>  <p>Find engineering best practices and foundational knowledge to come up to speed on a topic</p>		<p>Solve:</p>  <p>Find data-rich answers and insights essential to solving engineering problems with high business impact</p>	
<p>How Knovel adds value >>></p>	<p>LEARNING / KNOWLEDGE MANAGEMENT</p> 	<p>PRODUCT DEVELOPMENT & ENHANCEMENT</p> 	<p>EHSQ RISK MANAGEMENT</p> 	<p>OPERATIONAL EXCELLENCE</p> 

The Knovel home page

1.
Login / Create Account

2.
“Persistent Toolbar” gives you access to key features wherever you are in Knovel

3.
Knovel Search

4.
Feed is customized per your usage & preferences

The screenshot shows the Knovel home page interface. At the top right, there is a 'Support Center' link and a user profile area with 'Login' and 'Welcome Knovel' (callout 1). A dark vertical sidebar on the left contains navigation icons: 'Property Search' (callout 2), 'My Knovel', 'Browse', 'Equations', 'Unit Converter', and 'More Tools'. The main content area features a search bar with 'SEARCH KNOVEL' and 'PROPERTY SEARCH' tabs, and a search input field with a magnifying glass icon (callout 3). Below the search bar are three featured sections: 'Save Time with an Account' (with a 'Create an Account' button), 'Search for Pure Compounds' (with a 'Search Chemicals' button and a bar chart), and 'Solve Equations' (with a 'Learn More' button and a mathematical equation). A 'Feedback' button is on the right edge, and an 'Explore this page' button is at the bottom right.

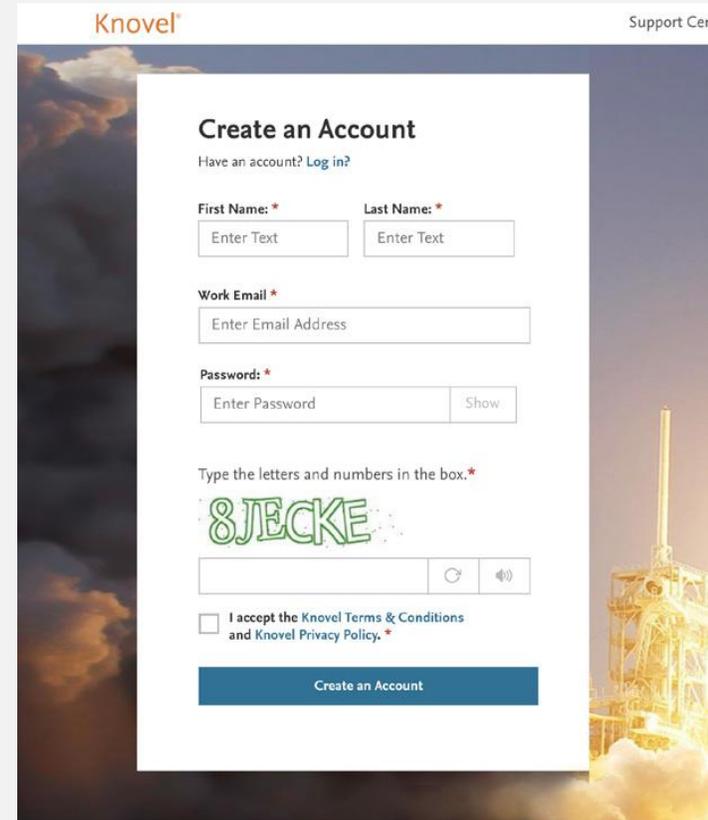
1. Create a User Account

Getting Started With Knovel — Registration

Visit App.Knovel.com and click **Create Account** to register with Knovel.

Benefits of registering:

-  Print & Download content for offline use
-  Share content with colleagues
-  Create notes & highlights on content



The screenshot shows the Knovel registration page. At the top left is the Knovel logo, and at the top right is a 'Support Center' link. The main heading is 'Create an Account'. Below it, there is a link for users who already have an account: 'Have an account? Log in?'. The form contains several fields: 'First Name' and 'Last Name' (both with 'Enter Text' placeholder), 'Work Email' (with 'Enter Email Address' placeholder), and 'Password' (with 'Enter Password' placeholder and a 'Show' button). Below the password field is a CAPTCHA challenge: 'Type the letters and numbers in the box.' with a box containing '8JECKE' and a refresh button. At the bottom, there is a checkbox for 'I accept the Knovel Terms & Conditions and Knovel Privacy Policy.' and a blue 'Create an Account' button.

1. Create a User Account: Now, also on your Mobile device!

1.
Download the *MyKnovelToGo* app on your iOS or Android device.

2.
Select "Register Instantly".

3.
Enter registration information.

4.
If Knovel recognizes the email domain or user's IP, then address registration will be successful.

1 MyKnovelToGo

mobile.registration+8533@knovel.net

Password

Sign In

Forgot your password?

or

If you access Knovel by first signing in to your organization's Intranet

Get an Authentication Code ?

or

Register Instantly 2

with the email address you use at your organization

Instant Registration

Email

Password

At least 8 characters, 1 uppercase letter, and 1 digit

Repeat Password 3

First Name

Last Name

I have read and agree to the [Terms and Conditions](#)

Create Account

Cancel

Instant Registration

mobile.registration+8563@knovel.n

abcAbc12 4

Registration Success

You are almost done...

Please check your email to activate your account.

NOTE: Automatically-generated emails can sometimes be routed to Bulk email folders. Please check this folder if you do not receive your activation email and add Knovel to your "safe senders" list

OK

2. Search

Search Knovel with precision and ease

Knovel offers engineers two different search techniques:

1

Search broadly and then filter

OR

2

Advanced Search to find using
Keyword, Book Title or Author

OR

3

Use Material Property Search to locate information
that may be hidden in large, complex tables

Use our Search bar to find what you need

Knovel®

Support Center

Welcome Sreenath Juttu

1

SEARCH KNOVEL

PROPERTY SEARCH

3

▶ Video

acrylic polymer*



Advanced Search ▾

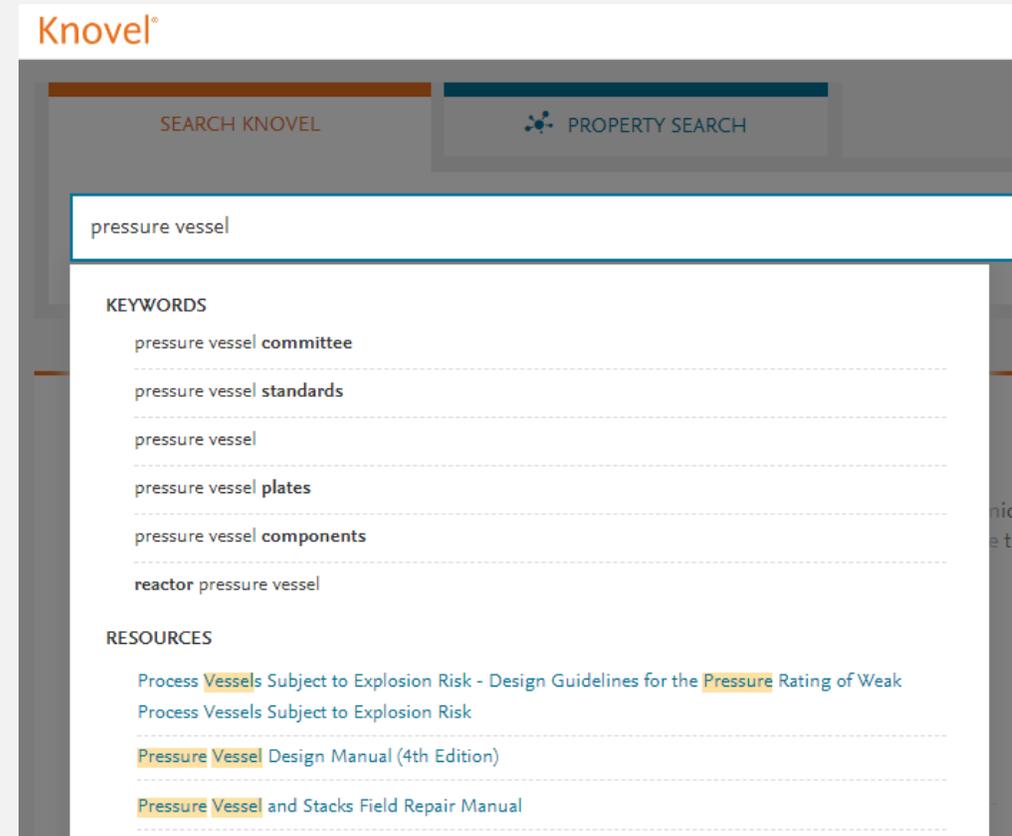
2

2.1 Search

Just type into the search bar

Knovel

Auto Suggest:
As you type your query,
Knovel automatically
suggests relevant search
terms



The screenshot displays the Knovel search interface. At the top, there are two search options: "SEARCH KNOVEL" and "PROPERTY SEARCH". Below these is a search bar containing the text "pressure vessel". Underneath the search bar, there are two sections of auto-suggestions:

- KEYWORDS**
 - pressure vessel **committee**
 - pressure vessel **standards**
 - pressure vessel
 - pressure vessel **plates**
 - pressure vessel **components**
 - reactor** pressure vessel
- RESOURCES**
 - Process **Vessels** Subject to Explosion Risk - Design Guidelines for the **Pressure** Rating of Weak Process Vessels Subject to Explosion Risk
 - Pressure Vessel** Design Manual (4th Edition)
 - Pressure Vessel** and Stacks Field Repair Manual

2.1 Search

Use filters to narrow down the results

View video tutorials

1
Content Type Filters:
Looking for data in a table? Or need to work in an equation?
Just click on the type you need.

2
Related Engineering Concept Filter: *What context do you need the information in?*
With a single click, refine your search results using engineering concepts generated by Knovel.

3
Click on a Search result for Full-Text access.

The screenshot shows the Knovel search interface. At the top right, there is a 'Support Center' link and a 'View video tutorials' callout. The search bar contains 'pressure vessel' and has options to 'Share Search Results', 'Save Search Query', and 'Video'. Below the search bar, there are filters for 'Refine By Related Concept' (mechanical engineers, low-alloy, brittle fracture, relief valves, ferritic, carbon steels, astm standards, low-alloy steels, and a '+] More' link) and 'External Links' (Compendex from Engineering Village). The search results are displayed in a list format, with 'All (4200+)', 'Book (3700+)', 'Graphs / Tables (300+)', 'Equations (100+)', and 'Definitions (60+)'. The results are sorted by 'Relevancy'. The first result is '[BOOK] 2017 Boiler and Pressure Vessel Code, Section II - Materials' by ASME Boiler and Pressure Vessel Committee on Materials... (2017). The second result is '[BOOK] Irradiation Embrittlement of Reactor Pressure Vessels (RPVs) in Nuclear Power Plants' by Soneda, Naoki (2015). Annotations 1, 2, and 3 are placed on the interface: 1 points to the 'Book' filter, 2 points to the 'relief valves' filter, and 3 points to the first search result.

2.1 Search Results: Text / Content Viewer

1. Save what you need to 'My Knovel' for easy future reference, OR for sharing with colleagues.
2. Highlight the text (multiple colors available) and save for easy access later.
3. Annotate (make notes) and save for future reference, OR share with colleagues.

The screenshot shows a document viewer interface for 'Steel Wire'. At the top left, there is a 'Save to My Knovel' button with a star icon and a blue circle '1' next to it. The document title is 'Steel Wire', revised by Allan B. Dove, Consultant. The text is annotated with highlights and notes. A blue circle '2' is placed over a highlighted sentence: 'Low-carbon steel flat wire can also be produced by slitting cold-rolled flat sheet or strip steel to the desired width.' A blue circle '3' is placed over a note in the right-hand 'NOTES' panel: 'Low-carbon steel flat wire can be produced by slitting cold-rolled flat sheet or strip steel to the desired width. Refer to colleague'. Another blue circle '3' is placed over a note: 'Medium-low-carbon steel wire (>0.15 to 0.23% C) For future reference'. A third blue circle '3' is placed over a note: 'the usual block sizes by gages between 0.889 and 12.70 mm (0.035 and 0.500 in.) Relevant for Project A'. The interface includes a search bar, a 'View All Colors' dropdown, and a 'Page 1' indicator.

2.2 Advanced Search

Find book titles with precise search parameters

1.
Click on the **Advanced Search** link.

2.
Enter your **search** term(s) in the appropriate field(s) provided.

3.
Optional: Select '*More*' to display additional **search** fields.
Note: One of these two additional fields may be included in an **advanced search** query.

4.
Select '**Search**'.

Knovel®

Support Center

View video tutorials

SEARCH KNOVEL

PROPERTY SEARCH

acrylic polymer*

1 Advanced Search

Knovel®

Support Center

Welcome Sreenath Juttu

SEARCH KNOVEL

PROPERTY SEARCH

Video

Advanced Search

Search All

Book Title

Author

More ▾

2

2

2

3

4

Search

Clear All

×

- Put exact phrases in quotes: "metal corrosion".
- Type OR between any of the optional words you are interested in; otherwise, every word in each box must be present.
- Type NOT before words you don't want.
- Use * for any letters, or ? for any single letter.
- Entries in multiple fields are combined with an AND.

2.3 Material Property Search

Finding materials with the required properties is easy – Just Drag & Drop!

View video tutorials

1.

To get to Material Property Search, either click on it on the home page, OR dedicated, intelligent search “wizard” guides you through searching for materials or substances.

2.

Select a Property, and Knovel's taxonomy lets you pick from relevant properties to complete your data query. Easy, drag-and-drop functionality, to quickly find the data you need.

3.

Click on Results to find what you need.

Knovel[®] Search Knovel Support Center

Home > Material Property Search

Material Property Search

Share URL Save to My Knovel Video

MATERIAL OR SUBSTANCE NAME ben 1

molar density exists 2

7 Results 3

— Collapse all

- > Chemical Properties 2
 - > Atomic And Molecular Properties
 - > Molecular Weight +
 - Molar Mass +
 - Molar Density +
 - Molar Refraction +
 - Molar Volume +
 - > Thermal And Thermodynamic Properties
 - > Enthalpy

2.3.1 Material Property Search: Knovel Data Analytics (KDA)**

1. Find chemical & physical property data of thousands of compounds – with the reliability of NIST data.

Knovel Data Analytics
NIST ThermoDynamics Pure Compounds

Search name, class, property, and more...

Filter by Material Class 1

Class: Amino acid salts

105 Results

Previewing 1 - 10 out of 105

- lysine
- cystine
- valylvaline
- (D)-cystine
- (L)-cystine
- serylserine
- alanylvaline
- glycylserine
- glycylvaline
- glutamic acid

2. Find what suits your requirements – look for compounds that satisfy your criteria.

Knovel Data Analytics
NIST ThermoDynamics Pure Compounds

Search name, class, property, and more...

Filter by Properties 2

Click to add thermophysical properties charts

- Adiabatic compressibility
- Density
- Isothermal compressibility
- Thermal pressure coefficient
- Coefficient of isobaric expansion
- Joule-Thomson coefficient
- Second virial coefficient
- Third virial coefficient
- Speed of sound

THERMAL PRESSURE COEFFICIENT

Temperature (°F)

62 Results

Previewing 1 - 10 out of 62

- octane
- oxygen
- ethene
- pentane
- ethanol
- krypton
- water-d2
- fluorine
- but-1-ene
- prop-1-yne

**KDA is available for Knovel subscriptions that include the “Chemistry & Chemical Engineering” Subject Area

2.3.1 Material Property Search: Knovel Data Analytics (KDA)**

1. Use KDA's new-age tools to compare side-by-side, and find what you need.

The screenshot displays the Knovel Data Analytics interface. On the left, a 'Compare Selected' panel shows two compounds side-by-side:

- 2,2,4,4,6,6-HEXAMETHYL-1,3,5,2,4,6-TRIAZATRISILINANE**
CAS RN: 1009-93-4
InChi: InChi=1S(C6H21N3Si3)/c1-10(2)7-11(3,4)9-12(5,6)8-10/h7-9H,1-6H3
InChiKey: WGGNJZRNUJNEM-UHFFFAOYSA-N
Molecular formula: C6H21N3Si3
- 2,2,4,4,6,6,8,8-OCTAMETHYL-1,3,5,7,2,4,6,8-TETRAZATETRASILOCANE**
CAS RN: 1020-84
InChi: InChi=1S(C8H28N4Si4)/c1-13(2)9-14(3,4)11-16(7,8)12-15(5,6)10-13/h9-12H,1-8H3
InChiKey: FIADVASZMLCQIF-UHFFFAOYSA-N
Molecular formula: C8H28N4Si4

A red circle with the number '1' highlights the InChiKey for the second compound. Below the comparison, two boiling point curves are shown. The left graph plots Boiling Point (K) vs. Pressure (kPa) for the first compound, with a red circle '1' highlighting a point on the curve. The right graph shows the same for the second compound, with a red circle '1' highlighting a point on its curve. A table above the graphs provides specific data points:

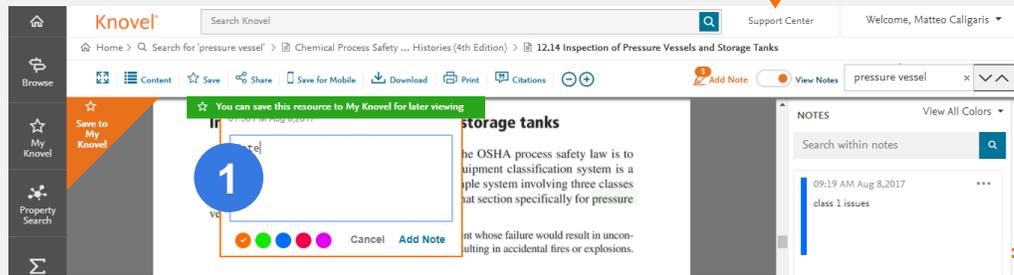
Value:	+/-	Unit	Value:	+/-	Unit
430.72	-0.55051	K	483.58	-0.58099	K
Temp: 430.72			Temp: 483.58		
Press: 45.000			Press: 44.848		
Phase: Liquid-Gas			Phase: Liquid-Gas		
Source: NIST			Source: NIST		

**KDA is available for Knovel subscriptions that include the "Chemistry & Chemical Engineering" Subject Area

3.1 Key Features: My Knovel

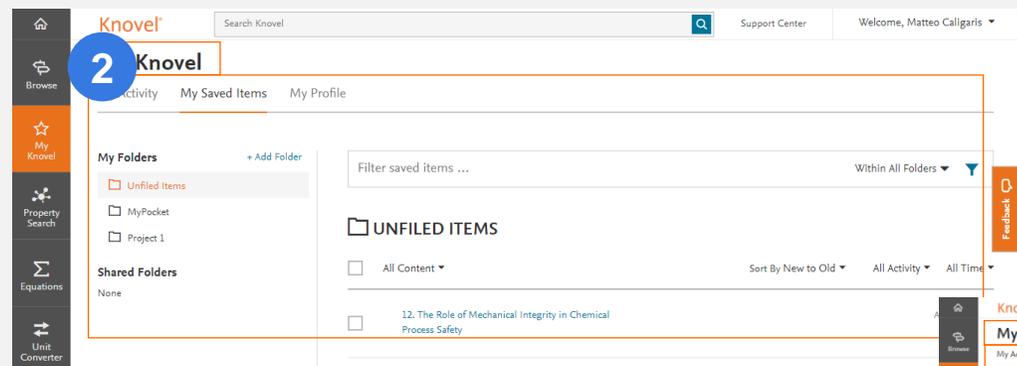
Knovel

View video tutorials in support center

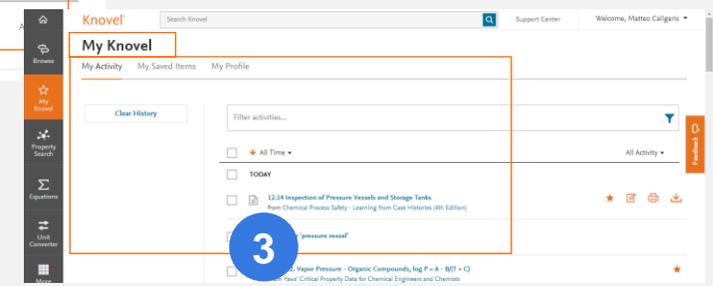


1. Annotate, save and share content.

2. Save the content, notes and data you need most often – to 'My Knovel'.



3. Pick up where you left off.



3.1 Key Features: My Knovel

Knovel

View video tutorials in support center

The screenshot shows the Knovel search interface. At the top, there's a search bar with 'haber process' entered. Below the search bar, there are options to 'Share Search Results', 'Save Search Query', and 'Video'. On the left, there's a 'Refine By Related Concept' section with filters for 'ammonia synthesis', 'nitrogenase', 'chemical reaction ...', and 'nitrogen cycle'. The main search results area shows 'All (260+)', 'Books / Text (240+)', and 'Definitions (17)'. A specific result is highlighted: '[BOOK] Predictive Control in Process Engineering - From the Race to the Applications'.

2. Save time and effort - save search queries to 'My Knovel'.

1. Save a search result, e.g. a title, to your 'My Knovel' for easy access later.

The screenshot shows a Knovel document page titled 'Hydrogen Utilization in Chemical Industry 181'. It features a flow chart illustrating the main components of a typical Haber process. The process starts with 'Nitrogen From air' and 'Hydrogen From air' entering a 'Compressor'. The output of the compressor goes into a 'Reactor' (15-25 Mpa, 300-500°C, Catalyst). The output of the reactor goes into a 'Cooling Chamber', which produces 'Liquid ammonia as product'. 'Unreacted gas (N₂ and H₂)' is recycled back into the 'Compressor'. The page also includes a caption: 'FIGURE 10.6 A flow chart illustration of the main components in a typical Haber process [11].'

3. Share a search with your colleagues.

The screenshot shows a 'SHARE THIS SEARCH' dialog box. It contains a text input field with the URL 'https://app.knovel.com/web/search.v?qi=haber%20process&search_type=tech-reference&ro'. Below the URL field, there's a section for 'Enter the email addresses of people you'd like to share this Search:' with a text input field and the instruction 'Separate multiple addresses with commas'. There's also a section for 'Enter a message you'd like to appear with your item (optional):' with a text input field. At the bottom, there are 'Cancel' and 'Share via Email' buttons.

3.2 Key Features: The 'MyKnovelToGo' Mobile App

Knovel

Option 1: On the Knovel site find the book you need

1.
In the Table of Contents, save a book title to Mobile.

2.
Download the book on your MyKnovelToGo app.

The screenshot shows the Knovel website interface. At the top, there is a search bar with the text 'Search Knovel' and a magnifying glass icon. To the right of the search bar are links for 'Support Center' and 'Welcome Sreenath Juttu'. Below the search bar, the breadcrumb trail reads 'Home > Search for: haber process > Predictive Control in Process Engineering - From the Basics to the Applications'. The main content area features a book cover for 'Predictive Control in Process Engineering - From the Basics to the Applications' with a 'new' badge. The title is prominently displayed, followed by a brief description: 'Describing the principles and applications of single input, single output and multivariable predictive control in a simple and lively manner, this practical book discusses topics such as the handling of on-off control, nonlinearities and numerical problems. It gives guidelines and methods for reducing the computational demand for real-time'. Below the description is a 'View More' link. At the bottom of the page, there are several utility buttons: 'Save to My Knovel', 'Citation', 'Save to Mobile', and 'Share'. A 'Search Within' box is also present. A 'Feedback' button is located on the right side of the page. A blue circle with the number '1' is overlaid on the 'Save to Mobile' button.

The screenshot shows the MyKnovelToGo mobile app interface. At the top, there is a hamburger menu icon on the left, the 'MyKnovelToGo' logo in the center, and a plus sign icon on the right. Below the header is a 'My Resources' section. The list of resources includes: 'Predictive Control in Process Engineering - From the Basics to the Applications' by Haber, Robert; Bars, Ruth; Schmitz, Ulrich; 'Civil Avionics Systems (2nd Edition)' by Moir, Ian; Seabridge, Allan; Jukes, Malcolm; 'Tools for Making Acute Risk Decisions with Chemical Process Safety Applications' by Center for Chemical Process Safety; and '2017 ASHRAE® Handbook - Fundamentals (I-P Edition)' by American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc. Each resource entry includes a book cover thumbnail, the title, authors, and icons for download, delete, and share. A blue circle with the number '2' is overlaid on the first resource entry.

3.2 Key Features: The 'MyKnovelToGo' Mobile App

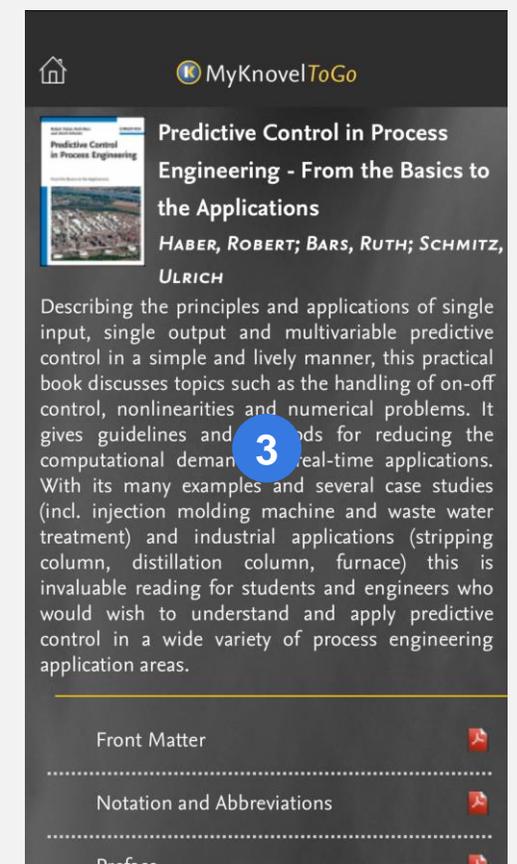
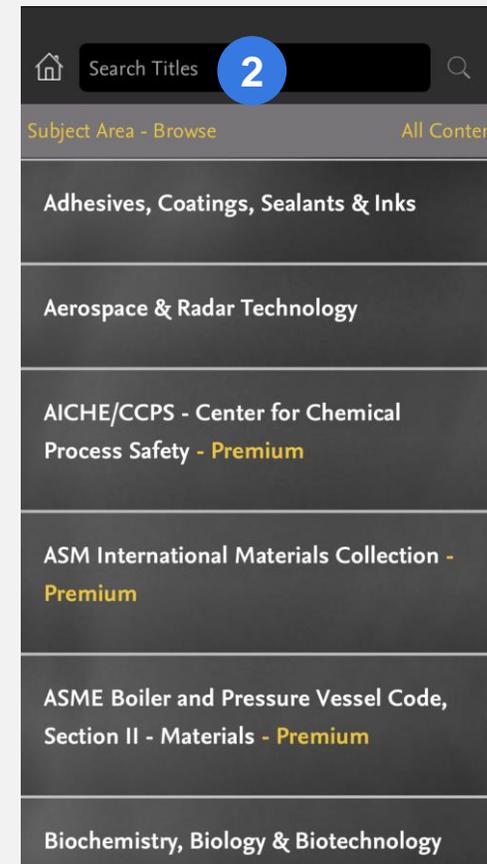
Knovel

Option 2:
Search on the *MyKnovelToGo*
app for mobile devices

1.
On the mobile app, tap 'Add Titles'
from the menu

2.
Search by Title, or Browse the full
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3.3 Key Features: Interactivity

Interactive Equations

View video tutorials in support center

1. Filter the search results for interactive equations.
2. Click the required equation.
3. Click 'Open Worksheet'.
4. Use the solver to compute exact values.

Knovel Search Center

Search for: distributed load

1. Filter by 'Equations' (149)

2. Click on the equation result: "[EQUATION] Maximum Deflection in a Cantilever Beam with a Uniformly Distributed Load"

Knovel Interactive Equations

3. Click 'Open Worksheet'

Equation:
$$v_L = \frac{w L^4}{8 E I}$$

4. Use the solver to compute exact values.

Knovel Equation Solver

Worksheet Edit Calculate Insert Units

Maximum Deflectio...

Legend with variables and units

Maximum deflection at the free end.	v_L	in
uniformly distributed load	w	$\frac{\text{lb}}{\text{in}}$
Young's modulus	E	psi
Second moment of area	I	in^4
Length of the beam	L	in

Calculation

$w := 100 \frac{\text{lb}}{\text{in}}$

$E := 200000 \text{ psi}$

$I := 10000 \text{ in}^4$

$L := 100 \text{ in}$

4. $v_L = 0.625 \text{ in}$

3.3 Key Features: Interactivity

Interactive Tables

View video tutorials in support center

- 1. Filter the search results for Interactive Tables.
- 2. Click the required Table.
- 3. Manipulate the Table - move or remove Columns & Rows – all within Knovel.
- 4. Save / Export data.

Knovel® Support Center Welcome Sreenath J

Home > Search for: distributed load

distributed load

Advanced Search

1

Refine By Related Concept

- bending moment diagrams
- maximum shear
- influence lines
- imposed loads
- bearing strength
- strength design
- point load
- arches
- [+] More

External Links

Compendex from Engineering Village

All (3700+) Books / Text (3500+) **Graphs / Tables (7)** Equations (160+) Definitions (50+) Worksheets (2)

Graphs Tables

Sort by Relevancy < 1 > Include out of subscription results

[TABLE] Table NA.3 of EN 1991-1-1. Imposed Loads on Floors, Balconies and Stairs in Buildings Save Result

From Structural Eurocodes - Extracts from the Structural Eurocodes for Students of Structural Design (3rd Edition); (PP 1990:2010)

table preview - 3 of 29 records View Full Table < >

category of loaded area	uniformly distributed load, q_k	concentrated load, Q_k
Category C - C13, Classrooms	3.0	3.0
Category B - B1, General use other than in B2	2.5	2.7
Category C - C22, Places of worship	3.0	2.7

Sample of table data is provided above. Click to view complete table and search results.

Knovel® Search Knovel Support Center Welcome Sreenath Juttu

Home > Search for: imposed load > Table NA.3 of EN 1991-1-1. Imposed Loads on Floors, Balconies and Stairs in Buildings

Table NA.3 of EN 1991-1-1. Imposed Loads on Floors, Balconies and Stairs in Buildings Video Info

Contents Save Export View Text

distributed load

Cancel Selection Show Selection 3 Rows Selected Rows 1 - 29 of 29 Page 1 of 1

Category of loaded area Concentrated load, Q_k (kN) Uniformly distributed load, q_k (kN/m²)

Category A - A1, All usages within self-contained dwelling units. Communal areas (including kitchens) in blocks of flats with limited use (see Note - 1). For communal areas in other blocks of flats.	2.0	1.5
Category A - A2, Bedrooms and dormitories except those in self-contained single family dwelling units and in hotels and motels	2.0	1.5
Category A - A3, Bedrooms in hotels and motels; hospital wards; toilet areas	2.0	2.0
Category A - A4, Billiard/snooker rooms	2.7	2.0
Category A - A5, Balconies in single family dwelling units and communal areas in blocks of flats with limited use (see Note 1)	2.0	2.5
Category A - A6, Balconies in		

3.3 Key Features: Interactivity

Interactive Graphs

1. Filter the search results for Interactive Graphs.

2. Click the required Graph.

3. Click on Graph directly to plot X & Y coordinates.

4. Save / Export data.

The screenshot shows the Knovel search results page for the query 'distributed load'. The search bar at the top contains the text 'distributed load'. Below the search bar, there are filters for 'All (3700+)', 'Books / Text (3500+)', 'Graphs / Tables (7)', 'Equations (160+)', 'Definitions (50+)', and 'Worksheets (2)'. The 'Graphs / Tables (7)' filter is selected. A table of results is displayed, with the first entry being a graph titled 'Figure 8-1. Graph for determining tapered beam size based on deflection under uniformly...'. The table has columns for 'graph digitizer', 'x-axis', 'y-axis', 'graph title', and 'text'. The 'x-axis' column contains 'Tapered beam size, Γ ' and the 'y-axis' column contains 'Deflection, $(\Delta_{bb})_{(h_c-h_b)^3E/WL^3}$...'. A blue circle with the number '2' is placed over the 'Open Graph' button in the first row of the table.

The screenshot shows the interactive graph interface for Figure 8-1. The graph is titled 'Figure 8-1. Graph for determining tapered beam size based on deflection under uniformly...'. The graph shows a plot of deflection versus tapered beam size. The X-axis is labeled 'Tapered beam size, Γ ' and the Y-axis is labeled 'Deflection, $(\Delta_{bb})_{(h_c-h_b)^3E/WL^3}$ '. The graph shows a curve for 'SINGLE TAPER' and a curve for 'DOUBLE TAPER'. A blue circle with the number '3' is placed over the 'SINGLE TAPER' curve. The graph also includes a legend and a table of data points. A blue circle with the number '4' is placed over the 'Export' button in the top right corner of the interface.

X	Y
1.480	0.1141
1.891	0.1902
2.378	0.2770
2.774	0.3531
3.185	0.4353
3.657	0.5281

4. Find Help and Support

Support

1.
For Video Tutorials, FAQs and more, access the “Support Center”.

2. Contact Us
While we strive to make Knovel easy and intuitive to use, sometimes help is required. Our customer support team is here to help and you can contact us in various ways.

The screenshot displays the Knovel website interface. At the top left is the Knovel logo. To its right is a navigation bar with a 'Support Center' link, which is highlighted with a blue circle containing the number '1'. Further right is a user greeting 'Welcome Sreenath Juttu' with a dropdown arrow. Below the navigation bar is a search area with two tabs: 'SEARCH KNOVEL' (highlighted with an orange bar) and 'PROPERTY SEARCH' (highlighted with a teal bar). A search input field contains the text 'author: yaws' and a search icon. To the right of the search field is a 'Video' link with a play button icon. Below the search field is an 'Advanced Search' link with a dropdown arrow. At the bottom of the page is the Elsevier logo and footer text: 'Knovel subscription is supported by Knovel. Contact your Knovel administrator for additions/suggestions.' (with a blue circle containing the number '2' next to 'suggestions'), 'Copyright © 2018 Knovel Corporation. All rights reserved.', and links for 'Terms and conditions', 'Privacy Policy', 'Contact Us', and 'Sitemap'. A cookie notice is also present: 'Cookies are used by this site. To decline or learn more, visit our Cookies page.'



ELSEVIER

Knovel Usage Scenario



Scenario 1: Teaching and Learning

Knovel provides you with links to the Ei database: reference books, relevant chapters, conference articles, teaching cases and extracted definitions from books

The screenshot displays the Engineering Village search interface. At the top, the Engineering Village logo is on the left, and navigation links for Search, Alerts (with a notification icon), and Selected records (with a notification icon) are on the right. The main search bar contains the query: "Quick search: All fields for e.g. (artificial intelligence OR intelligent computing) AND {social media}". Below the search bar, there are various filters including Databases, Date, Language, Document type, Sort by, Browse indexes, Autostemming, Discipline, and Treatment. A grid of database checkboxes is visible, with Knovel selected. The search results page shows a title "机器学习中的特征选择方法研究及展望" (Research and Prospect of Feature Selection Method in Machine Learning) by authors 董海博, 徐帅, 张利锋, Roy E. Welch, and Berthold K.P. Horn. The abstract discusses feature selection methods for big data analysis. The page also includes a download button for the PDF and a citation for the Journal of Beijing University of Posts and Telecommunications.

Full text of books in PDF format – basic knowledge

The screenshot shows the Knovel search results for 'Machine Learning'. The search bar contains 'Machine Learning' and the results are filtered to 'Books / Text (1000+)'. The top result is '[BOOK] Machine Learning Algorithms' by Bonaccorso, Giuseppe (2017). The snippet reads: '...As the amount of data continues to grow at an almost incomprehensible rate, being able to understand and process data is becoming a key differentiator for competitive organizations. Machine learning applications are... More'. Below this is another result: '[BOOK] Hands-on Data Science and Python Machine Learning' by Kane, Frank (2017). The snippet reads: '...Author, who worked on Amazon and IMDb's machine learning algorithms, as he guides you on your first steps into the world of data science. This book gives you the tools that you need to understand and explore the core topics... More'. The page also features a 'Featured' section with a mobile app download link and a 'NEW!' section for 'Make your own Notes in this book'. A table of contents is visible on the right side of the page, listing chapters from 'Front Matter' to '6. Naive Bayes'. The Knovel logo and navigation menu are visible on the left side of the page.

Knovel

Support Center | Welcome Emma Luo

Home > Search for 'Machine Learning'

Machine Learning

Share Search Results | Save Search Query | Video

Refine By Related Concept

- supervised learning
- neighbors
- k-means
- support vector machine
- perceptron
- feature selection
- cross-validation
- backpropagation
- [+] More

External Links

Compendex from Engineering Village

All (1100+) Books / Text (1000+) Definitions (25)

Books Chapters Conference Proceedings Engineering Cases Regulatory

Sort by Relevancy

1

Include out of subscription results

[BOOK] Machine Learning Algorithms By Bonaccorso, Giuseppe (2017)

Save Result

...As the amount of data continues to grow at an almost incomprehensible rate, being able to understand and process data is becoming a key differentiator for competitive organizations. Machine learning applications are... More

See Inside

[BOOK] Hands-on Data Science and Python Machine Learning By Kane, Frank (2017)

Save Result

...Author, who worked on Amazon and IMDb's machine learning algorithms, as he guides you on your first steps into the world of data science. This book gives you the tools that you need to understand and explore the core topics... More

See Inside

Search Within

Featured

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Learn More

NEW! Make your own Notes in this book

Front Matter

Preface

Table of Contents

1. A Gentle Introduction to Machine Learning

2. Important Elements in Machine Learning

3. Feature Selection and Feature Engineering

4. Linear Regression

5. Logistic Regression

6. Naive Bayes

Additional Information

Author(s) / Editor(s) Bonaccorso, Giuseppe

Full text of relevant chapters

All (1100+) Books / Text (1000+) Definitions (42)

Books Chapters X Conference Proceedings Engineering Cases Regulatory

[CHAPTER] 9.1.2.1 **Machine Learning** ☆ Save Result
From Python Natural Language Processing (2017)
...Machine learning Machine intelligence Machine consciousness Before getting into the details of each stage of AI, refer to Figure 9.4:
Figure 9.4: Stages of AI (Image credit: https://cdn-images-1.medium.com/max/1600/0*aefkt8m-V66Wf5-j.png)... More

New [CHAPTER] 8.2.7 **Machine Learning** ☆ Save Result
From Robotic Assistive Technologies - Principles and Practice (2017)
...Machine Learning New models of SARs are becoming increasingly dynamic to cope with this demand, SARs need to be able to adapt to their environments and use previous

[CHAPTER] 9.2.1 **Machine Learning**
From Active and Assisted Living - Technologies and Applications (2016)
...9.2.1 Machine learning Machine Learning (ML) is a component Artificial Intelligence primarily addresses the interface between learning... More

[CHAPTER] 2.4.1 **Machine Learning**
From Cognitive Radio Engineering (2016)
...2.4.1 Machine Learning Machine learning is a topic that has captured the imagination

Preceding Part (6 of 22)
"Table of Contents"

1

A Gentle Introduction to Machine Learning

In the last few years, machine learning has become one of the most important and prolific IT and artificial intelligence branches. It's not surprising that its applications are becoming more widespread day by day in every business sector, always with new and more powerful tools and results. Open source, production-ready frameworks, together with hundreds of papers published every month, are contributing to one of the most pervasive democratization processes in IT history. But why is machine learning so important and valuable?

Introduction - classic and adaptive machines

Since time immemorial, human beings have built tools and machines to simplify their work

Conference – advanced information

All (1100+) Books / Text (1000+) Definitions (25)

Books

Chapters

Conference Proceedings **X**

Engineering Cases

Regulatory

See Inside

[CONFERENCE PROCEEDING] Prediction of Process Window for Plastic Injection Molding Using Simulation Tools and a Support Vector Machines Classifier

Save Result

...comparison of supervised learning algorithms, in Proceedings of the 23rd international conference on Machine learning, ACM: Pittsburgh, Pennsylvania. 161-168 (2006). 11. P. Zhao, H. Zhou, Y. Li, and D. Li,... [More](#)

See Inside

[CONFERENCE PROCEEDING] A Study of Using Internet Technology to Improve Learning Efficiency of Learning Injection Molding Technology

Save Result

...of polymer materials; (4) structure of injection mold and (5) shooting trouble solving. And avoiding operate the real machine, we designed the virtual reality machine of injection molding... [More](#)

See Inside

[CONFERENCE PROCEEDING] Challenges in Teaching E-Learning Courses for Plastics Engineering Technology

...mechanisms, technology courses can be effectively offered to students in an online setting. There themselves to an online format, such as those that contain lab sections, but some labs or portions of

See Inside

Learning Efficiency Test

The main propose of learning efficiency test is to prove whether the system has learning efficiency. The learners fill in the basic information for them, and proceeding the pre-test quiz. At the same time, LMS would record these information in the database.

After that, the learners proceed the learning about the courses of injection molding. After the learners learning the courses, the learning system would be shown the post-test quiz.

Discussion

From the experiments of the learning efficiency test, we used the paired samples t-test and independent samples t-test to analyze the results of the experiment through the SPSS software. The results have two parts: the paired samples t-test, and the independent samples t-test. About the results, we designed that all learners is "ALL", the learner that learned the correlation courses is "Y", and the learner that never learned the correlation courses is "N".

Paired Samples T-Test

According to table 2, we could get the result that t-value is -14.182 and p-value was smaller than 0.05.

From fig.10, the mean score of the "ALL" had an increasing trend. Through the e-learning system learning, the mean score of pre-test and post-test was statistically significant ($p = 0.000$), indicating that the knowledge of the e-learning system had a significant effect on the learning of these learners.

Table2. Paired samples t-test for "ALL."

Through the paired samples t-test for "Y" group, we can get the result that the mean score of pre-test and post-test for Y group was statistically significant ($p = 0.000$), is shown in table3. The knowledge of the e-learning system had a significant effect on the learners of "Y" group. The mean score of post-test was clearly higher than the mean score of pre-test, is shown in fig.11.

Table 3. Paired samples t-test for "Y" group

	Sample	Mean Score	Standard Deviation	t-value	p-value
Pre-Test	17	37.06	17.946	-8.468	*0.000
Post-Test	17	80.59	14.349		

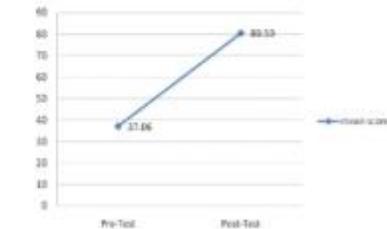


Figure11. Variation of mean score for "Y" group

For the learners of "N" group, through the paired samples t-test, indicating the knowledge of the learning system had a significant effect on the learning of these

Definitions - Fast discovery of reliable definitions

All (1100+) Books / Text (1000+) **Definitions (25)**

Encyclopedia Dictionary

Sort by Relevancy < 1 2 3 >

Include out of subscription results

[ENCYCLOPEDIA] **Machine Learning Approach** ☆ Save Result

From International Encyclopedia of Ergonomics and Human Factors, Volume 1 (2nd Edition) (2006)

...**MACHINE LEARNING APPROACH** **Machine learning** refers to algorithms that automatically learn (i.e. set tuning parameters) based on experience or training data. Two very popular methods in the area of **machine learning** are decision trees and artificial neural networks. When compared to the methods of statistical approach, these two can be characterized as model... [Less](#)

[ENCYCLOPEDIA] **BN Learning**

From Encyclopedia of Statistics in Quality and Reliability, Volumes 1-4 (2007)

..., known as structural EM, that presumably converges to a local maximum of the BIC score [7, 13]. Probabilistic Models It is well known that classic **machine learning** methods like Hidden Markov mc and Kalman filters can be considered as special cases of BNs [4, 13] Specific types of BN models were

as solving the classification, regression, and clustering problems, even though there are other categories of tasks that the data mining methods can be applied to: summarization of data and deviation detection; problem-solving, and knowledge-engineering tasks (Moustakis *et al.* 1996).

It is difficult to draw the precise boundaries of data mining because it is basically interdisciplinary, reaching into statistics, database technology, machine learning, pattern recognition, artificial intelligence, visualization, and other knowledge discovery techniques. In later sections, some of the major data mining methods are reviewed from the machine learning and statistical approaches.

3 MACHINE LEARNING APPROACH

Machine learning refers to algorithms that automatically learn (i.e. set tuning parameters) based on experience or training data. Two very popular methods in the area of machine learning are decision trees and artificial neural networks. When compared to the methods of statistical approach, these two can be characterized as model (or distribution)-free methods. However, even though decision trees and artificial neural networks are known as the methods of machine learning, some of those methods were also developed as statistical methods.

3.1 DECISION TREES

Decision trees represent the decision rules, which partition the data (or the feature space) into a set of groups (or a set of rectangles) with hierarchical and sequential structures. A decision tree is said to perform classification or regression according to the types of the class labels (i.e. categories or dependent variables). Decision trees are called classification

instability of trees, and inadequate crisp decisions, several new methods, such as soft splits, bagging, and boosting, are introduced to decision tree research.

Even though decision trees have some limitations, it is still an attractive and powerful method. Gehrke (2003) summarized the major advantages of decision trees. First, decision trees are easy to understand because they were inspired by the human decision processes. Second, decision trees are nonparametric and thus especially suited for exploratory knowledge discovery. Third, decision trees can be constructed relatively fast compared to other data mining methods. Fourth, the accuracy of decision trees is comparable to other classification models.

3.2 ARTIFICIAL NEURAL NETWORKS

An artificial neural network is a computational model that consists of a network structure, and learning and recall procedures. Tsoukalas and Uhrig (1997) defined an artificial neural network as "a data processing system consisting of a large number of simple, highly interconnected processing elements (artificial neurons) in an architecture inspired by the structure of the cerebral cortex of the brain." These processing elements (or neurons) usually belong to three kinds of layers — an input layer, one or more hidden layers, or an output layer — and are interconnected as a feedforward network structure, in which neurons in a given layer have no lateral connections with each other and no connection back to the previous layers. The connection weights are unknown parameters, which are estimated by a training method. The most popular training method is backpropagation, which repeatedly distributes training errors from output neurons proportionally back to their connection weights until training error reaches a given threshold.

Scenario 2: Numeric retrieval - locate query answers in seconds

Set common optical fiber search

Initial main interface, in the absence of search keywords, the right side lists all conditional search

The system automatically selects the conditions that meet the fiber and automatically removes the irrelevant conditions

The screenshot displays the 'Material Property Search' interface. At the top, there are options for 'Share URL', 'Save to My Knowel', and 'Video'. A search bar labeled 'MATERIAL OR SUBSTANCE NAME' contains the text 'optical fibers'. Below the search bar, a blue box indicates '41 Results'. The main area contains a 'Drag and Drop Properties Here' instruction. On the right side, a 'Filter by Property Name' dropdown menu is expanded, showing a list of property categories: Electrical Properties, Dielectric Properties, Material Composition, Moisture Content (Wt Basis), Mechanical Properties, Optical Properties, Physical Constants, Rheology, and Solution Properties. Below the search bar, there is a 'Search Knowel' field and a 'Support Center' link. At the bottom, there is a 'Unit Converter' and 'More Tools' section. The 'Filter by Property Name' dropdown is highlighted with an orange box, and the search bar is also highlighted with an orange box.

Numerical search

The screenshot shows a web interface for material property search. At the top, there is a breadcrumb trail: Home > Material Properties > Material Property Search. The main search area has a text input field containing "optical fibers". Below this, a second input field contains "intensity" and a dropdown menu is set to "exists". To the right of this second input field is a blue button labeled "2 Results". On the right side of the interface, there is a filter panel titled "Filter by Property Name" with a dropdown arrow. Below this, there is a "Collapse all" button and a list of property categories. The "Optical Properties" category is expanded, showing sub-categories: Refractive Index, Intensity, and Spectral Line. The "Density" category is also visible. A teal callout box at the top center says "Add only one conditional search for an optical attribute". An orange box highlights the "intensity" input and the "exists" dropdown. Another orange box highlights the "2 Results" button. A teal callout box at the bottom center says "Search results are reduced to 2 items in seconds".

Home > Material Properties > Material Property Search

optical fibers

intensity exists

2 Results

Filter by Property Name

Collapse all

Mohs Hardness

Optical Properties

- Refractive Index
- Intensity
- Spectral Line

Density

Rheology

- Viscosity
- Dynamic Viscosity

Solution Properties

- Acid-Base Properties
- PH

Interactive tables

The screenshot shows an interactive table with the following structure:

x-axis label	y-axis label	graph title	graph digitizer
<input type="checkbox"/> Wave number, ν (cm^{-1})	Loss α (dB/km) bottom	FIGURE 1 Absorption spectra of silica glass. Dotted curves: model absorption spectra calculated to reproduce the measured refractive index curve; solid curves: measured absorption spectra; broken line: Rayleigh scattering and loss spectrum of a low loss pure silica core single-mode fibre. view text	
<input type="checkbox"/> Energy, E (eV)	Loss α (dB/km) top	FIGURE 1 Absorption spectra of silica glass. Dotted curves: model absorption spectra calculated to reproduce the measured refractive index curve; solid curves: measured absorption spectra; broken line: Rayleigh scattering and loss spectrum of a low loss pure silica core single-mode fibre. view text	
<input type="checkbox"/> Wavelength (μm)		FIGURE 1 Dispersion behaviour of silica at room temperature from 0.2 to 2.3 μm . view text	
		FIGURE 1 Temperature dependence of refractive index for silica glass...	

Callouts in the image:

- Value of optical fiber related attributes**: Points to the y-axis labels.
- Check out the full article**: Points to the 'view text' links.
- Click on the interactive table**: Points to the table area.

Interactive graphics

The screenshot shows a software interface for digitizing a scientific graph. The main plot is a log-log graph with 'APPLIED STRAIN (%)' on the y-axis (ranging from 2 to 5) and 'APPLIED STRESS (GPa)' on the x-axis (ranging from 10² to 10⁷). The plot contains data points and lines from 'WANG & ZUPKO (1978)' and 'KRAUSE (1980)'. Annotations include 'n_H = 2', '40°C', and '90°'. The interface includes a top navigation bar, a toolbar with 'Export' and 'Print' buttons, and a left sidebar with axis configuration options. A table in the sidebar shows captured data points. Three callout boxes highlight key features: the 'Export' button and menu, the data table, and the plot area.

Home > Properties, Processing and Applications of Glass and Rare Earth-Doped G... > FIGURE 2 St

FIGURE 2 Static fatigue of silica optical fibers for static processing

GRAPH DIGITIZER

Add to My Knowel Export Print

How to Use

X Axis
Time to failure (s) Left

Y Axis
Applied strain (%)

X Significant Digits 4

X	Y
4913	3.827
7356	3.745
11220	3.674
18400	3.569

Active Area Clear A

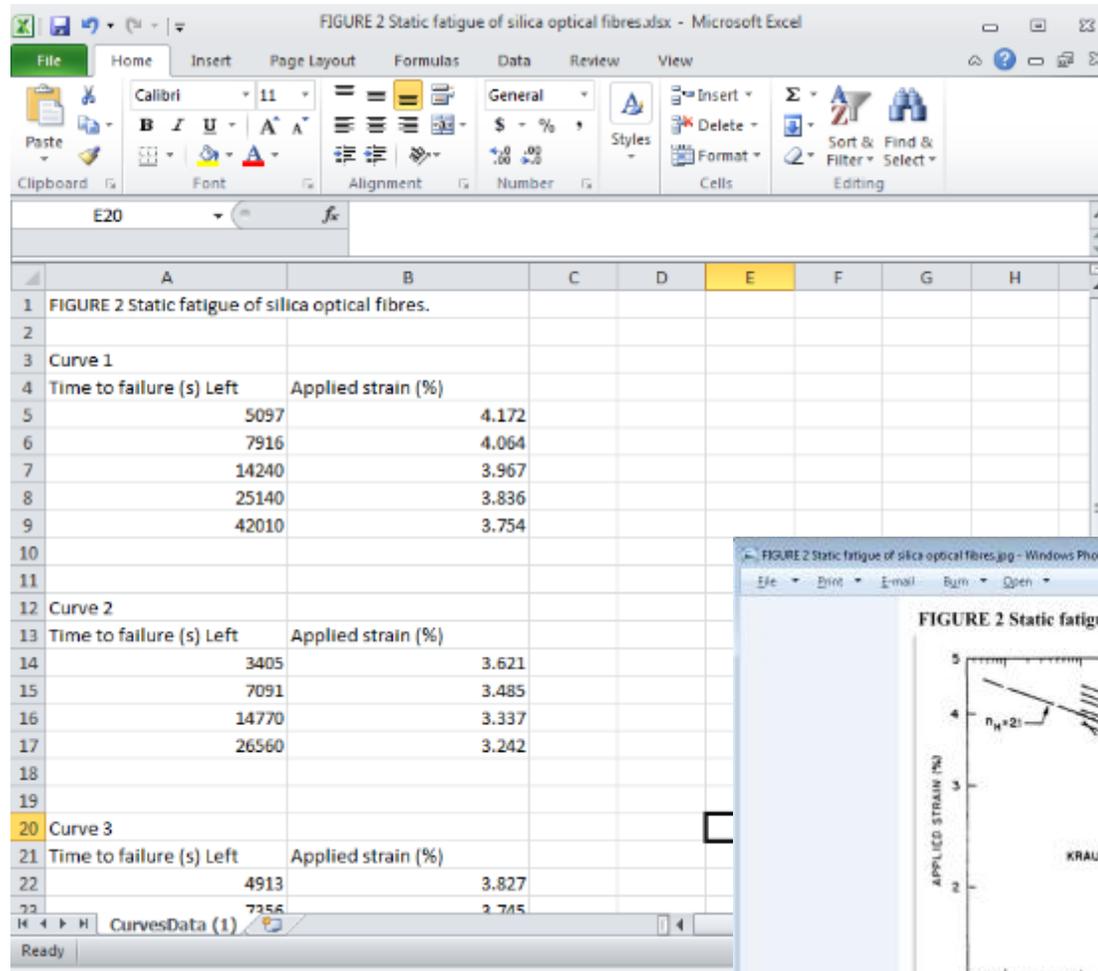
Drop-down menus make it easy to export data in a variety of formats

Please choose a file format:
Data
Microsoft Excel
HTML
ASCII Text
Graph
JPEG
GIF
PNG

OK Cancel

Click the mouse to easily draw according to scientific research or experimental needs

Results output

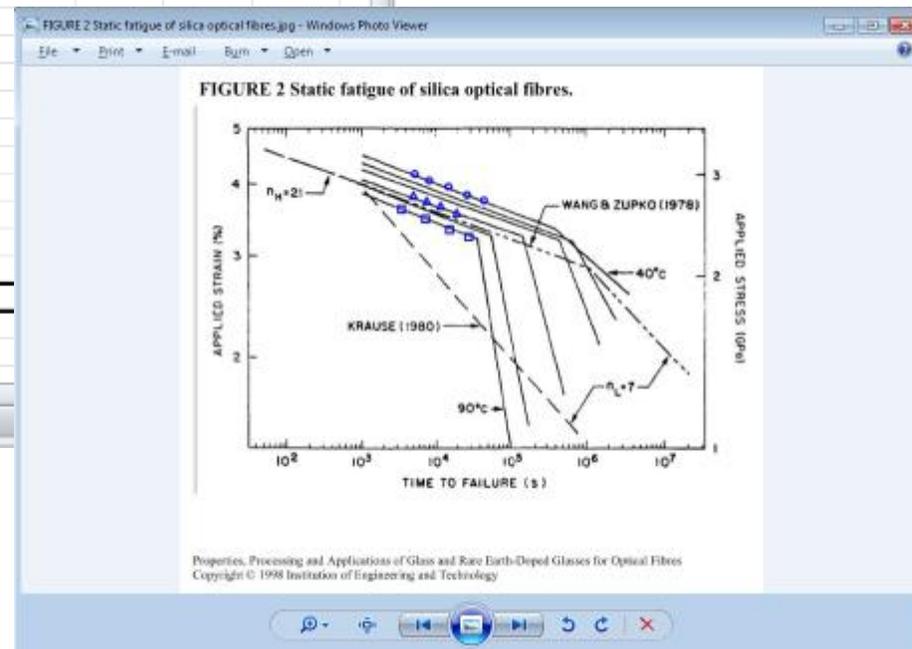


Curve 1	
Time to failure (s) Left	Applied strain (%)
5097	4.172
7916	4.064
14240	3.967
25140	3.836
42010	3.754

Curve 2	
Time to failure (s) Left	Applied strain (%)
3405	3.621
7091	3.485
14770	3.337
26560	3.242

Curve 3	
Time to failure (s) Left	Applied strain (%)
4913	3.827
7356	3.745

The results can be exported to Excel tables that can be shared or used directly for papers, and the literature is automatically generated – easy and quick



Print interface design is reasonable, can be directly used for experimental reports

Scenario 3: The interactive equation

Electrical & Power Engineering

Covers power generation, plant design, energy storage including batteries, transmission line design and operation, electrical safety, and energy efficiency. Of use to electrical, power, mechanical, and civil engineers designing turbines, power generation plants, transmission towers and cabling, installing pipelines for underground transmission, and electrical safety devices.

Boiling Point of Water at Certain Altitudes

The factor that gives rise to variation of the boiling point of water is the pressure. The barometric formula is used to define the air pressure as a function of altitude. The function wspTSP defined in the collapsible area below calculates the saturation temperature of water/steam as a function of pressure as specified for Region 4 of the Revised Release of the IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and/or Steam.

Density of Steam (Region 2 of the IAPWS-IF97 Formulation) as a Function of Pressure and Specific Entropy

The function wspD2PS defined in the collapsible area below calculates the density of steam as a function of pressure and specific entropy as specified for Region 2 of the Revised Release of the IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and/or Steam. The equations for steam temperature as a function of pressure and specific entropy for subregions of Region 2 of the IAPWS-IF97 is shown in the dimensionless form.

$$\frac{T(p, s)}{1 \cdot K} = \theta(\pi, \sigma) = \sum_{i=1}^{46} n_i \cdot p_i^{I_i} \cdot (\sigma - 2)^{J_i}$$

$$\frac{T(p, s)}{1 \cdot K} = \theta(\pi, \sigma) = \sum_{i=1}^{44} n_i \cdot p_i^{I_i} \cdot (10 - \sigma)^{J_i}$$

$$\frac{T(p, s)}{1 \cdot K} = \theta(\pi, \sigma) = \sum_{i=1}^{30} n_i \cdot p_i^{I_i} \cdot (2 - \sigma)^{J_i}$$

ρ is Density of steam, kg/m³
 R is specific gas constant, kJ/kgK
 p is pressure of steam, MPa
 π is pressure of steam, dimensionless
 s is specific entropy of steam, kJ/kgK
 σ is specific entropy of steam, dimensionless
 T is temperature of steam, °C
 θ is temperature of steam, dimensionless

The interactive equation of cloud computing

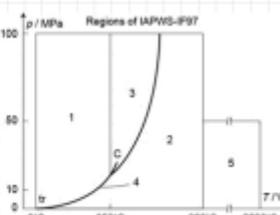
Knovel® Equation Solver

WORKSHEET EDIT CALCULATE INSERT UNITS

Density of Steam Density of Steam ...

Density of Steam (Region 2 of the IAPWS-IF97 Formulation) as a Function of Pressure and Specific Entropy

The function wspDIFS defined in the collapsible area below calculates the density of steam as a function of pressure and specific entropy as specified for Region 2 of the Revised Release of the IAPWS Industrial Formulation 1997 for the Thermodynamic Properties of Water and/or Steam. The equations for steam temperature as a function of pressure and specific entropy for subregions of Region 2 of the IAPWS-IF97 is shown in the dimensionless form.



for the subregion 2a
$$\frac{T(p, s)}{1 \cdot K} = \theta(n, \sigma) = \sum_{i=1}^{46} \left(n_i \cdot p^i \cdot (10 - \sigma)^{J_i} \right)$$

for the subregion 2b
$$\frac{T(p, s)}{1 \cdot K} = \theta(n, \sigma) = \sum_{i=1}^{44} \left(n_i \cdot p^i \cdot (10 - \sigma)^{J_i} \right)$$

for the subregion 2c
$$\frac{T(p, s)}{1 \cdot K} = \theta(n, \sigma) = \sum_{i=1}^{30} \left(n_i \cdot p^i \cdot (2 - \sigma)^{J_i} \right)$$

Legend with variables and units

p	is the pressure of steam	MPa
n	is the dimensionless pressure of steam	dimensionless
s	is the specific entropy of steam	$\frac{kJ}{kg \cdot K}$
σ	is the dimensionless specific entropy	dimensionless

Directly fill in the numbers to calculate or edit the formula, so that the equation becomes a daily indispensable tool for engineers

p	is the pressure of steam	$\frac{p}{1 \cdot MPa}$	MPa
n	is the dimensionless pressure of steam	$\frac{p}{1 \cdot MPa}$	dimensionless
s	is the specific entropy of steam	$\frac{s}{2 \cdot \frac{kJ}{kg \cdot K}}$	$\frac{kJ}{kg \cdot K}$
σ	is the dimensionless specific entropy	$\frac{s}{2.9251 \cdot \frac{kJ}{kg \cdot K}}$	dimensionless
	for the subregion 2a	$\frac{s}{0.7853 \cdot \frac{kJ}{kg \cdot K}}$	
	for the subregion 2b	$\frac{s}{2.9251 \cdot \frac{kJ}{kg \cdot K}}$	
	for the subregion 2c	$\frac{s}{2.9251 \cdot \frac{kJ}{kg \cdot K}}$	
T	is the temperature of steam	$\frac{T}{1 \cdot K}$	°C
θ	is the dimensionless temperature	$\frac{T}{1 \cdot K}$	dimensionless
n, I and J	are the coefficients (see the function below)		dimensionless



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Thank you

