國立臺灣大學
National Taiwan University

工程圖學 2D CAD

This course is part of **CAD/BIM技術與應用 Specialization**

Instructor: 康什仲

16,265 already enrolled

Included with **coursera PLUS** • Learn more

8 modules
Gain insight into a topic and learn the fundamentals.

4.8 ★
(223 reviews)

3 weeks to complete
at 10 hours a week

Flexible schedule
Learn at your own pace

👍 **96%**
Most learners liked this course

Skills you'll gain

Engineering Design Process | Technical Drawing | Drafting and Engineering Design | Engineering Drawings | AutoCAD | Visualization (Computer Graphics)

Computer-Aided Design | Architectural Drawing

Details to know

in
Shareable certificate
Add to your LinkedIn profile

📋 **Assessments**
9 assignments[1]
AI Graded see disclaimer

📑 **Taught in Chinese (Traditional)**

See how employees at top companies are mastering in-demand skills

PETROBRAS   TATA   DANONE

Capgemini   P&G   L'ORÉAL

國立臺灣大學
National Taiwan University

Build your subject-matter expertise

This course is part of the **CAD/BIM技術與應用 Specialization**
When you enroll in this course, you'll also be enrolled in this Specialization.

- Learn new concepts from industry experts
- Gain a foundational understanding of a subject or tool
- Develop job-relevant skills with hands-on projects
- Earn a shareable career certificate

There are 8 modules in this course

工程圖學在教什麼？這門課有的重要性為何？對我的專業有什麼幫助?沒有工程背景的人也可以學習工程圖學嗎？我不是工程師，學習工程圖學對我的生活有幫助嗎？

這門課是CAD/BIM技術與應用專項課程的第一門課，與其他三門課「工程圖學2D專題」、「工程圖學3D」，及「工程圖學3D專題」，作為工程圖學及電腦繪圖的入門課程，你將在這門課會學到各種繪圖的原理與方法，以及AutoCAD電腦繪圖技術，並在相關的作業練習中，逐漸熟練這些基本技術。
工程製圖的應用無所不在，最主要的目的就是利用圖像來描述物體的形貌與功能，作為保存與傳遞想法的工具。繪圖一點也不難，無論你從事什麼工作，來自什麼背景，只要你具備中學程度的基本幾何和三角函數概念，就可以在這裡從頭開始，學會工程圖學！你會驚訝的發現，當繪圖融入你的生活時帶來的趣味與方便！

Read less

蓄勢待發 Get Ready   Module details ⌃

Module 1 • 1 hour to complete

開始學習工程圖學2D CAD需要什麼準備？所有的課程資訊看這裡！第一個模組的內容包括：工程圖學涵蓋什麼主題？作業如何評分？如何通過這門課？當然，你一定需要安裝AutoCAD 2015這套軟體。你也可以在以下的連結找到軟體安裝的方法。

What's included

▶ 5 videos   📖 6 readings

Hide info about module content ⌃

▶ **5 videos • Total 19 minutes**

CAD/BIM專項課程歡迎你！ Welcome to CAD/BIM Specialization • 3 minutes

101 認識這門課 Get to Know This Course • 3 minutes

103 如何通過本課程 How to Pass This Course • 1 minute

【問卷】讓我們更了解你！ • 0 minutes

107 AutoCAD 2015 應用程式 軟體安裝 • 9 minutes

📖 **6 readings • Total 51 minutes**

NTU MOOC 課程問題詢問與回報機制 • 1 minute

102 課程大綱：我將會學些什麼？ Syllabus • 10 minutes

104 評分方式 Grading • 10 minutes

105 課程FAQ Course FAQ • 10 minutes

106 製作團隊 Production Team • 10 minutes

課程簡報 Course Slides • 10 minutes

工程圖學的意義與知識 Significance and Knowledge of Engineering Graphics

Module details ⌃

Module 2 • 1 hour to complete

所有的學習與知識建構都立基於基本原理與實作相關的先備知識。這個模組將帶你初步了解工程圖的產出過程，從發現問題，形成想法，畫製草繪圖、設計圖，到產出完稿圖。同時你也將認識如何讀圖、製圖、表達與敘述圖表…等工程師必備的圖學能力與素養與今日工程圖學的常用繪圖工具與使用時機。*本模組提供1個不計分的測驗練習。

What's included

▶ 3 videos   📖 1 reading   🗐 1 assignment

Hide info about module content ⌃

▶ **3 videos • Total 34 minutes**

201 工程師的語言 Language of Engineers • 11 minutes

202 工程師的圖學素養 Graphic Literacy for Engineers • 8 minutes

203 工程師的圖學工具 Graphic Tools For Engineers • 14 minutes

📖 **1 reading • Total 10 minutes**

課程簡報 Course Slides • 10 minutes

🗐 **1 assignment • Total 30 minutes**

習題：工程圖學的意義與知識 • 30 minutes

基礎圖形繪製

Module details ⌃

Module 3 • 7 hours to complete

「工欲善其事，必先利其器」。這個模組將由介紹平面草繪的基礎技巧開始，包含畫直線、圓、橢圓與弧的方式，並闡述如何生活中實作應用這些繪圖技巧。同時也開始AutoCAD電腦繪圖教學，讓你輕鬆上手，學會基本圖形工具的使用！*本模組包含第一次計分測驗，提供3個不計分練習。

What's included

▶ 6 videos   📖 1 reading   🗐 2 assignments   ⊞ 3 peer reviews

Hide info about module content ⌃

▶ **6 videos • Total 50 minutes**

301 平面草繪基礎 - 畫直線 • 7 minutes

302 平面草繪基礎 - 畫圓、橢圓、弧 • 7 minutes

303 平面草繪實作 • 7 minutes

304 AutoCAD 畫線 (line) • 6 minutes

305 AutoCAD 畫圓 (circle) • 8 minutes

306 AutoCAD 畫弧 (arc) • 11 minutes

📖 **1 reading • Total 10 minutes**

課程簡報 • 10 minutes

🗐 **2 assignments • Total 70 minutes**

測驗一：基礎圖形繪製 • 40 minutes

310 正確性測驗 • 30 minutes

⊞ **3 peer reviews • Total 300 minutes**

308 手繪太極 • 120 minutes

309 手繪茶壺 • 120 minutes

310 AutoCAD繪製太極 • 60 minutes

幾何圖法
Module 4 • 6 hours to complete

工程製圖表現物體的形貌，本是由各式各樣的幾何圖形組成，這個模組要教你的是幾何構圖的方法與原理，你也會因擁有正確的幾何知識，知道如何繪製多邊形、橢圓與拋物線等較難以直接精準描繪的圖形！\本模組包含第二次計分測驗。/

What's included

▶ 9 videos   📖 1 reading   📄 1 assignment   ☑ 2 peer reviews

Hide info about module content ⌃

▶ **9 videos • Total 98 minutes**

401 幾何構圖 • 12 minutes

402 直線、弧與角度任意等分 • 12 minutes

403 多邊形繪製 • 17 minutes

404 橢圓繪製 • 18 minutes

405 拋物線繪製 • 15 minutes

406 AutoCAD 格線和鎖點 (grid and snap) • 5 minutes

407 AutoCAD 畫橢圓 (ellipse) • 5 minutes

408 AutoCAD 畫雲形線 (spline)、拋物線 • 3 minutes

409 AutoCAD 畫聚合線 (polyline) • 7 minutes

📖 **1 reading • Total 10 minutes**

課程簡報 • 10 minutes

📄 **1 assignment • Total 40 minutes**

測驗二：幾何圖法 • 40 minutes

☑ **2 peer reviews • Total 240 minutes**

411 手繪拋物線 • 120 minutes

412 手繪橢圓(同心圓法) • 120 minutes

三視圖
Module 5 • 6 hours to complete

本模組將更深入探討「投影」的原理與特性，你將更加了解二維平面圖與三維立體物之間的關係，訓練從平面想像出立體的讀圖能力；並學會三種常見的立體圖，分等角圖、斜投影圖，以及透視投影圖，的繪製原理及其適用時機。*本模組包含第四次計分測驗，以及第三次計分互評作業。\

What's included

▶ 11 videos   📖 1 reading   📄 2 assignments   ☑ 2 peer reviews

Hide info about module content ⌃

▶ **11 videos • Total 117 minutes**

501 正投影基本概念 • 8 minutes

502 點、線、面投影特性 • 18 minutes

503 繪製三視圖 • 18 minutes

504 隱藏線和中心線 • 16 minutes

505 圓柱與曲面慣用表示 • 20 minutes

506 手繪 EG Cube #1 三視圖 • 1 minute

507 AutoCAD 延伸 (extend) • 5 minutes

508 AutoCAD 物件鎖點模式、物件選擇方式 (select) • 6 minutes

509 AutoCAD 分解(explode) 、 接合(joint)、 偏移複製 (offset) • 5 minutes

510 AutoCAD 修剪 (trim)、 快速修剪(extrim) • 5 minutes

511 AutoCAD 繪製 EG Cube #1 三視圖 • 9 minutes

📖 **1 reading • Total 10 minutes**

課程簡報 • 10 minutes

📝 **2 assignments • Total 70 minutes**

測驗三：三視圖 • 40 minutes

515 正確性測驗 • 30 minutes

📝 **2 peer reviews • Total 180 minutes**

514 手繪三視圖 EG Cube #2 • 120 minutes

515 AutoCAD繪製三視圖 EG Cube #3 • 60 minutes

立體圖

Module 6 • 6 hours to complete

Module details ⌄

本模組將更深入探討「投影」的原理與特性，你將更加了解二維平面圖與三維立體物之間的關係，訓練從平面想像出立體的讀圖能力；並介紹三種常見的立體圖，分等角圖、斜投影圖，以及透視投影圖，的繪製原理及其適用時機。\本模組包含第四次計分測驗，以及第三次計分互評作業。\

What's included

▶️ 12 videos   📖 1 reading   📝 2 assignments   📝 2 peer reviews

Hide info about module content ⌃

▶️ **12 videos • Total 137 minutes**

601 立體圖種類 • 15 minutes

602 投影的特性 • 13 minutes

603 平面想像立體的方法 • 11 minutes

604 等角投影與等角圖 • 17 minutes

605 斜投影圖 • 12 minutes

606 透視投影圖 • 8 minutes

607 AutoCAD 繪製EG Cube #1 等角圖 • 6 minutes

608 AutoCAD 平面視圖與等角視圖 • 7 minutes

609 AutoCAD 縮放和鏡射 (scale and mirror) • 9 minutes

610 AutoCAD 旋轉 (rotate) • 4 minutes

611 AutoCAD 圓角與倒角 (fillet and chamfer) • 11 minutes

612 AutoCAD 陣列 (array) • 20 minutes

📖 **1 reading • Total 10 minutes**

課程簡報 • 10 minutes

📝 **2 assignments • Total 70 minutes**

測驗四：立體圖 • 40 minutes

615 正確性測驗 • 30 minutes

📝 **2 peer reviews • Total 180 minutes**

615 AutoCAD繪製等角圖 EG-Cube #3 • 60 minutes

614 手繪等角圖 EG Cube #4 • 120 minutes

尺寸標註與出圖

Module 7 • 4 hours to complete

Module details ⌃

工程圖除了表達物體的形貌以外，當然要知道實際的尺寸大小，本模組內容包含工程圖尺寸標註的方式與規則，如何標註會更好、更清楚，以及學會工程圖繪製完成後的出圖作業。

What's included

▶ 10 videos   📖 1 reading   📄 1 assignment   🖼 1 peer review

Hide info about module content ⌃

▶ **10 videos • Total 102 minutes**

701 尺寸標註 • 17 minutes

702 圖框與標題欄 • 9 minutes

703 AutoCAD 填充線 (hatch) • 7 minutes

704 AutoCAD 物件性質 • 4 minutes

705 AutoCAD 圖層 (layer) • 7 minutes

706 AutoCAD 標註型式設定 • 13 minutes

707 AutoCAD 尺寸標註 (dimension) • 10 minutes

708 AutoCAD 文字註解及引線 • 5 minutes

709 AutoCAD 配置出圖、圖框及頁面設定 (layout) • 19 minutes

710 AutoCAD 不同比例尺寸文字大小調整 (layout) • 7 minutes

📖 **1 reading • Total 10 minutes**

課程簡報 • 10 minutes

📄 **1 assignment • Total 42 minutes**

測驗五：尺寸標註與出圖 • 42 minutes

🖼 **1 peer review • Total 120 minutes**

712 AutoCAD EG-Cube #3 出圖 • 120 minutes

下回見!

Module 8 • 26 minutes to complete

Module details ⌃

嘿！恭喜你完成了門這門課的所有主題！快來一起回顧一下你學到了哪些寶貴的圖學知識與實作技巧，你的下一個挑戰又會是什麼呢？請別忘記多多練習已經學得的內容，為計劃完成更進階的課程學習:)

What's included

▶ 6 videos

Hide info about module content ⌃

▶ **6 videos • Total 26 minutes**

恭喜完成課程！填寫問卷，分享蛻變的你 • 0 minutes

回顧 Part 1 • 7 minutes

回顧 Part 2 • 7 minutes

回顧 Part 3 • 4 minutes

回顧 Part 4 • 4 minutes

下一個旅程 • 1 minute

Earn a career certificate

Add this credential to your LinkedIn profile, resume, or CV. Share it on social media and in your performance review.

Instructor

康仕仲
National Taiwan University
6 Courses • 131,120 learners

Offered by

National Taiwan University
Learn more

Explore more from Mechanical Engineering

Recommended | Specializations | Related | Degrees

National Taiwan University
) CAD Application
urse

National Taiwan University
) CAD Fundamental
urse

Free Trial
Indian Institute of Technology Guwahati
omputer Aided Design
urse

Free Trial
Dassault Systèmes
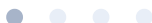)LIDWORKS 3D CAD for Education
ecialization

Show 2 more

Why people choose Coursera for their career

★ **4.8** 223 reviews

Rating		Percentage
5 stars		87.44%
4 stars		8.52%
3 stars		0.44%
2 stars		0%
1 star		3.58%

QQ
★ 5 · Reviewed on May 8, 2017

Learn the basics of the AutoCAD 2015. Extreme helpful to my work.

JX
★ 5 · Reviewed on Nov 21, 2016

本人是一名结构工程师，有十多年的AutoCAD 2D绘图经验，但已经有较长时间没有进行系统地学习CAD（刚毕业的时候学的是AutoCAD R14），一些新的功能和命令也不会用。通过学习这门课程，我学习和掌握了一些新的命令和画图技巧，这对我的工作效率肯定会有不小的提升。台大康教授的这门课程确实物有所值。

Read less

coursera PLUS

Open new doors with Coursera Plus

Unlimited access to 10,000+ world-class courses, hands-on projects, and job-ready
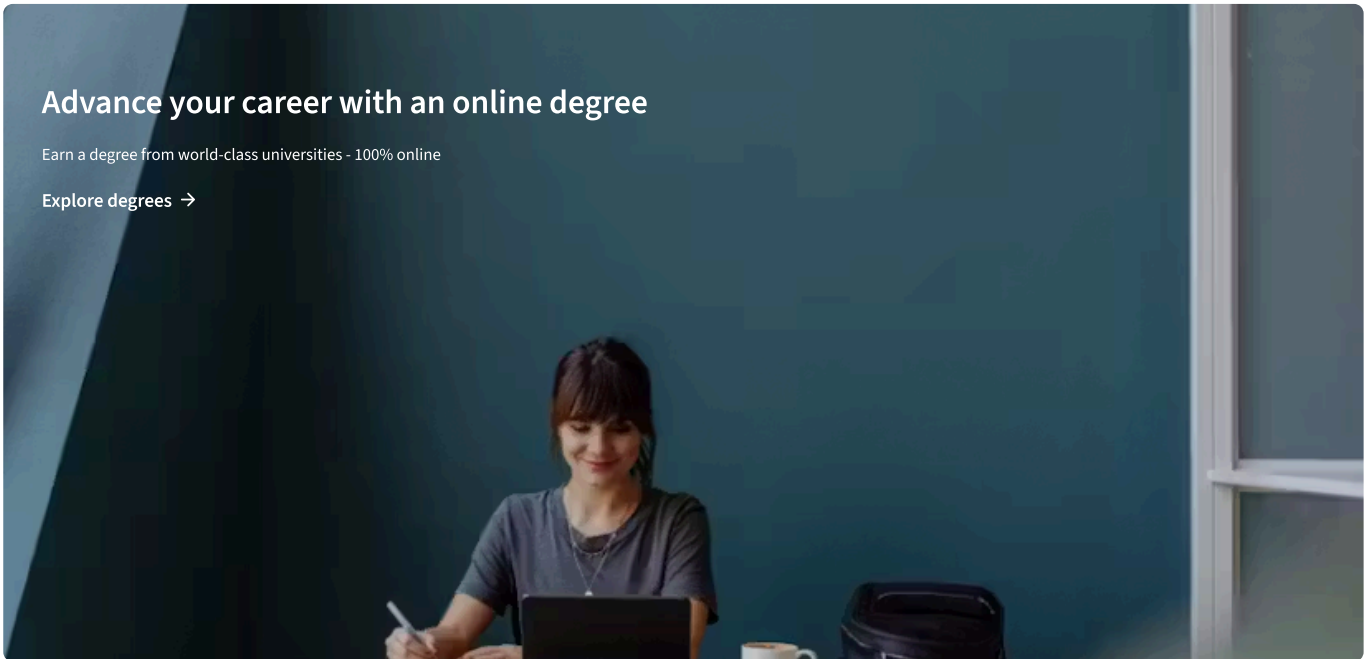certificate programs - all included in your subscription

Learn more →

Advance your career with an online degree

Earn a degree from world-class universities - 100% online

Explore degrees →

Join over 3,400 global companies that choose Coursera for Business

Upskill your employees to excel in the digital economy

Learn more →

Frequently asked questions

⌃ **When will I have access to the lectures and assignments?**

To access the course materials, assignments and to earn a Certificate, you will need to purchase the Certificate experience when you enroll in a course. You can try a Free Trial instead, or apply for Financial Aid. The course may offer 'Full Course, No Certificate' instead. This option lets you see all course materials, submit required assessments, and get a final grade. This also means that you will not be able to purchase a Certificate experience.

⌃ **What will I get if I subscribe to this Specialization?**

When you enroll in the course, you get access to all of the courses in the Specialization, and you earn a certificate when you complete the work. Your electronic Certificate will be added to your Accomplishments page - from there, you can print your Certificate or add it to your LinkedIn profile.

⌃ **Is financial aid available?**

Yes. In select learning programs, you can apply for financial aid or a scholarship if you can't afford the enrollment fee. If fin aid or scholarship is available for your learning program selection, you'll find a link to apply on the description page.

More questions
Visit the learner help center

Financial aid available, learn more

Skills
Artificial Intelligence (AI)

Cybersecurity

Data Analytics

Digital Marketing

English Speaking

Generative AI (GenAI)

Microsoft Excel

Microsoft Power BI

Project Management

Python

Certificates & Programs
Google Cybersecurity Certificate

Google Data Analytics Certificate

Google IT Support Certificate

Google Project Management Certificate

Google UX Design Certificate

IBM Data Analyst Certificate

IBM Data Science Certificate

Machine Learning Certificate

Microsoft Power BI Data Analyst Certificate

UI / UX Design Certificate

Industries & Careers
Business

Computer Science

Data Science

Education & Teaching

Engineering

Finance

Healthcare

Human Resources (HR)

Information Technology (IT)

Marketing

Career Resources
Career Aptitude Test

Examples of Strengths and Weaknesses for Job Interviews

High-Income Skills to Learn

How Does Cryptocurrency Work?

How to Highlight Duplicates in Google Sheets

How to Learn Artificial Intelligence

Popular Cybersecurity Certifications

Preparing for the PMP Certification

Signs You Will Get the Job After an Interview

What Is Artificial Intelligence?

Coursera
About

What We Offer

Leadership

Careers

Catalog

Community
Learners

Partners

Beta Testers

Blog

The Coursera Podcast

More
Press

Investors

Terms

Privacy

Help

Coursera Plus

Professional Certificates

MasterTrack® Certificates

Degrees

For Enterprise

For Government

For Campus

Become a Partner

Social Impact

Free Courses

Share your Coursera learning story

Tech Blog

Accessibility

Contact

Articles

Directory

Affiliates

Modern Slavery Statement

Manage Cookie Preferences

GET IT ON Google Play

Certified B Corporation