



# Digital education: current and future challenges

Professor Beverley Oliver, Deputy Vice Chancellor Education





# 6 new technology rules that will govern our future



With a 3D printer, you will be able to make your own one-of-a-kind toys. [designboom](#)

...We have already begun to see ways in which computing, sensors, artificial intelligence and genomics are reshaping entire industries, as well as our daily lives. ...Technology is creating a new set of rules that will change our very existence.



**Here are six:**

**1. Anything that can be digitised will be.**

**2. Your job has a significant chance of being eliminated**

**3. Life will be so affordable that you won't need a job to survive.**

*Because of the improvements in the shared cars, a generation is growing up without the need or even the desire to own a car.*

**4. Your fate will be in your own hands as never before.**

*Online learning in virtually any field is already free. ... With 3-D printers, you can create your own toys. ...Yes, you may have a small factory in your garage, and your neighbours may have one, too.*

**5. Abundance will become a far bigger problem than poverty.**

*significant degradation of our attention spans is partly attributable to spreading our attention too thin.*

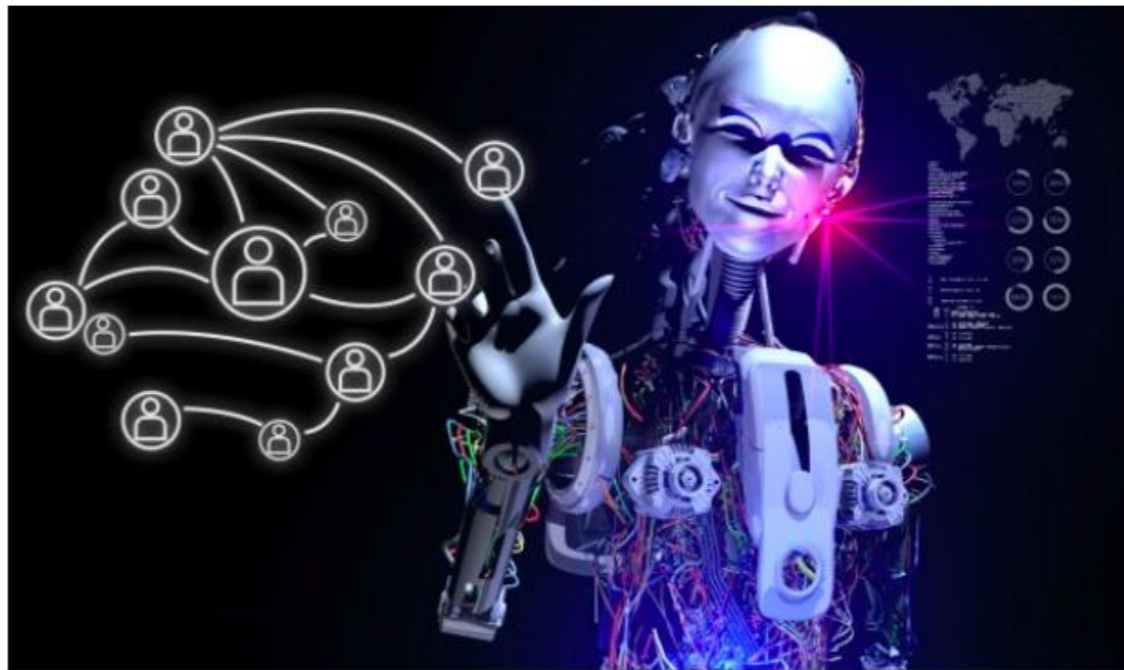




## 6. Distinction between man and machine will become increasingly unclear.

Georgia Tech's Ashkok Goel says automated 'nano tutors' will take-off in education

✉ G+ f t in



Using artificial intelligence to answer students' questions will soon be cheap and widely used in education. iStock

# What is online and blended learning?

# What is online and blended living?

shopping and banking

entertainment - music, television, film, books

communicating with family, friends

travel and holidays - flights and accommodation

professional connections and associations



[tiny.cc/agc](http://tiny.cc/agc)

# ASSURING GRADUATE CAPABILITIES

ABOUT

SPECIFY

ENGAGE

ASSESS

EVIDENCE


CREDENTIAL

ENHANCE

21C DIGITAL EDUCATION

RESEARCH

Evidencing learning and employability amid disruption



# Curriculum of the future:

**Who** will be learning?

**What** will they be learning and **why**, and  
**how** will we credential their learning?

**Where** and **how** will learning occur?

Much of this future is already here...





**What** students learn, and **why**, will be more closely associated with hard and soft skills related to (the unknown future of) work.

Providers will be more diverse, and will issue a broader range of micro and macro credentials, and those **who** earn the latter will be those who can afford them.

Curriculum of the future

**Where** and **how** students learn will be increasingly in micro bites on micro devices in online and blended modes - *learning at my place, my (online) spaces and my pace.*

Teaching-related tasks that can be automated will be.





What students learn, and **why**, will be more closely associated with **1** hard and soft skills related **2** (the unknown future of) work.

Providers will be more diverse, and will issue a broader range **3** micro and macro credentials, and those **who** earn the latter will be those who can afford them.

Curriculum of the future

Where and how students learn will be increasingly in micro bites on micro devices in online and blended modes **4** learning at my place, my (online) spaces and my pace.

Teaching-related tasks that can be automated will be.

**5**

What students learn, and why, will be more closely associated with **1** hard and soft skills related to **2** (the unknown future of) work.

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## Curriculum of the future

Where and how students learn will be increasingly in micro bites on micro devices in online and blended modes **4** learning at my place, my (online) spaces and my pace.

**5** Teaching-related tasks that can be automated will be.

# Employability versus employment

In disrupted economies,  
**employability** means that students and graduates  
can **discern, acquire, adapt and continually  
enhance** skills, understandings and personal  
attributes that make them more likely to **find and  
~~create~~ meaningful paid and unpaid work.**

(Oliver 2015 after Yorke 2006)





1

## hard and soft skills

 1 Discipline knowledge

 2 Communication

 3 Digital literacy

 4 Critical thinking

 5 Problem solving

 6 Self-management

 7 Teamwork

 8 Global citizenship

How can we **judge**  
and measure these?

How can students  
**evidence** these?

NOT soft skills

NOT co-curricular

What students learn, and why, will be more closely associated with hard and soft skills related to **2** (the unknown future of) work.

Providers will be more diverse, and will issue a broader range of micro and macro credentials, and those who earn the latter will be those who can afford them.

## Curriculum of the future

Where and how students learn will be increasingly in micro bites on micro devices in online and blended modes - learning at my place, my (online) spaces and my pace.

Teaching-related tasks that can be automated will be.





Computers will reshape the labour market:

- up to 40% of jobs in Australia could be replaced by computers within 20 years
- expanding competition and reducing the costs to consumers **and** reducing the income of workers.

Jobs that involve **low levels of social interaction, creativity, mobility and dexterity** are more likely to be replaced by automation.

# Australia's future workforce?

June 2015

 **ceda**  
committee for economic development of australia

  
**DEAKIN**  
UNIVERSITY AUSTRALIA





**Our challenge:**

**graduate employability**

**amidst**

**rdisrupted economies**



What students learn, and why, will be more closely associated with hard and soft skills related to (the unknown future of) work.

Providers will be more diverse, and will issue a broader range of **3** micro and macro credentials, and those who earn the latter will be those who



Curriculum of the future

Signals of achievement  
Credit (time and money)

## Better 21C Credentials

Evaluating the promise, perils and disruptive potential of digital credentials



Unit Code	Unit Title	Year/Semester	Result	CP	
CSI5113	Principles of Project Management	061	50	PASS SUPPLEMENTARY	20
MIS5131	Project Information Management V	061	66	CREDIT	15
MIS5135	Managing Projects in Organisations V	061	56	PASS	15

**Advanced Standing**

MIS4293	Internet IV			EXEMPT	15
MIS4106	Designing Web Usability IV			EXEMPT	15
MIS4205	Enterprise Applications IV			EXEMPT	15
MIS4195	Web Commerce Development IV			EXEMPT	15
MIS5104	IT Evaluation and Benefits Management V			EXEMPT	15
MIS4121				EXEMPT	15
MIS4108				EXEMPT	15
MIS4511				EXEMPT	15
MIS4118				EXEMPT	15

Course Comp

**Credit Points:** 185  
**Period WAM:** 56.6  
**Course WAM:** 56.6

Course: V02





CRICOS 049615J

Unit Code	Semester	Result	CP	
MIS4195	2	80	HIGH DISTINCTION	15
MIS4205	2	76	DISTINCTION	15
MIS4293	2	71	DISTINCTION	15
MIS4108	1	82	HIGH DISTINCTION	15
MIS4121	1	88	HIGH DISTINCTION	15
MIS5104	1	60	CREDIT	15
MIS4106	2	59	PASS	15
MIS4118	2	65	CREDIT	15
MIS4511	2	75	DISTINCTION	15

Course Completed:

14 December 2005

**Credit Points:** 135

-  1 Discipline knowledge
-  2 Communication
-  3 Digital literacy
-  4 Critical thinking
-  5 Problem solving
-  6 Self-management
-  7 Teamwork
-  8 Global citizenship



# Digital credentials warranting outstanding achievement

## Deakin Hallmarks

- whole of degree, undergraduate and postgraduate
- on application, awarded by industry-academic panel
- in addition to and unrelated to marks and grades
- for outstanding achievement
- the credential links to the evidence



# Digital credentials warranting learning achieved through life and work experience

## Professional Practice Credentials



## Professional Practice Masters



# Massive open online courses

- free, or for certificates and credit
- Coursera, edX, Udacity and FutureLearn
- increasingly, university courses on global platforms
- low completion rates - so what?

## Nanodegree, Nanodegree Plus, and now Nanodegree Lite?

Udacity's Nanodegree Lite costs \$79/month, but it does not include 1:1 support or the 50% money back guarantee







# **Coursera Pilots Mentor-Guided Courses**

**For \$248 per course, you can work with a professional who will keep you accountable**



# Arizona State University and edX

unit unit unit unit unit unit unit unit \$20K

on campus, pay up front, credit based on marks

mooc mooc mooc mooc mooc mooc mooc mooc \$5K

online, buy credit if marks achieved

**Global Freshman Academy**

Start your freshman year online

*#CollegeMyWay*



Enroll Today

Advance your career.  
Accelerate your Master's Degree.  
Faster, flexible, free to try.



MicroMasters Credentials are a Pathway to Today's Top Jobs





micro bites  
micro devices  
start anytime  
assessments when ready

can afford them.

Curriculum of the future

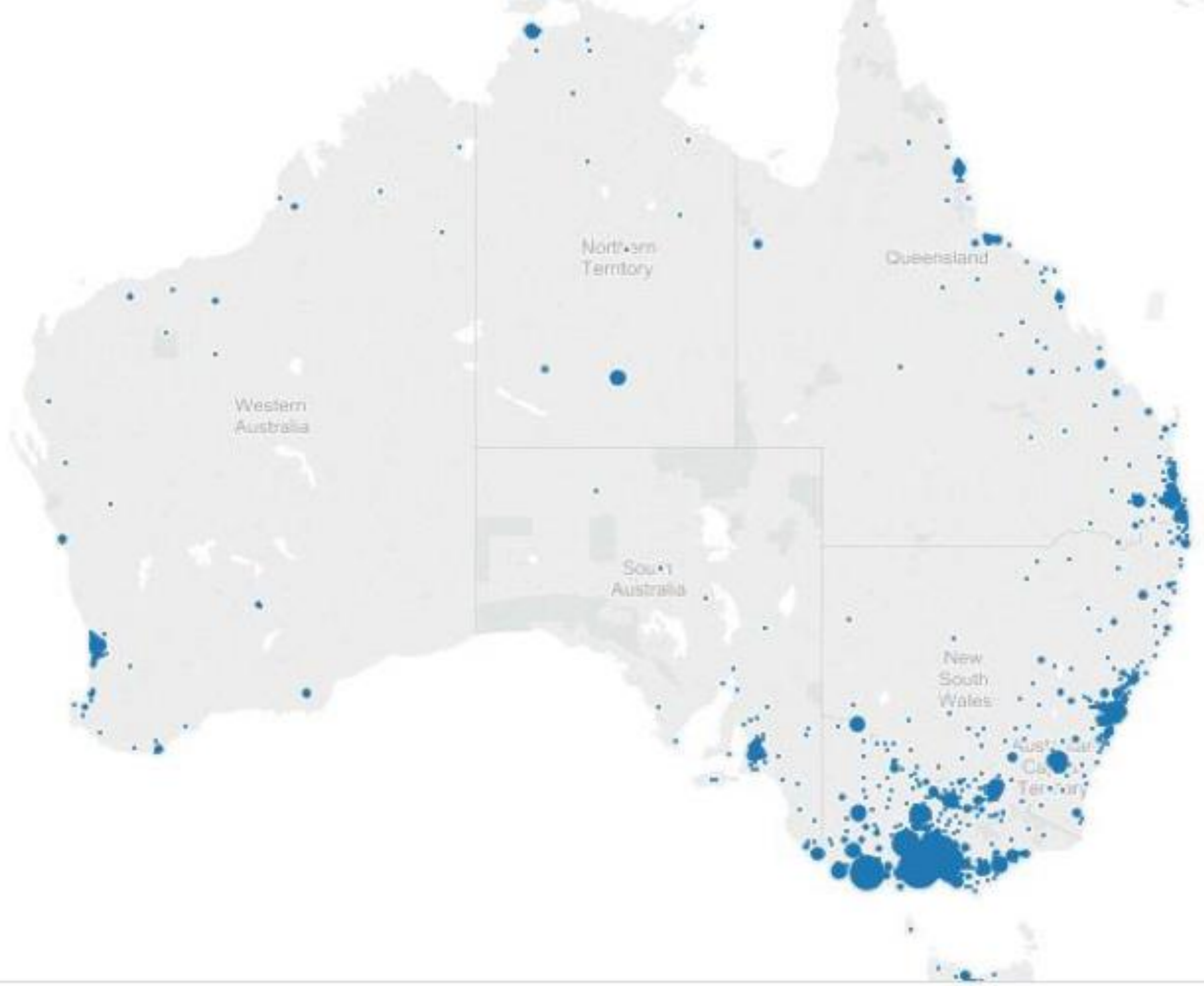
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4

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Teaching-related tasks that can be automated will be.





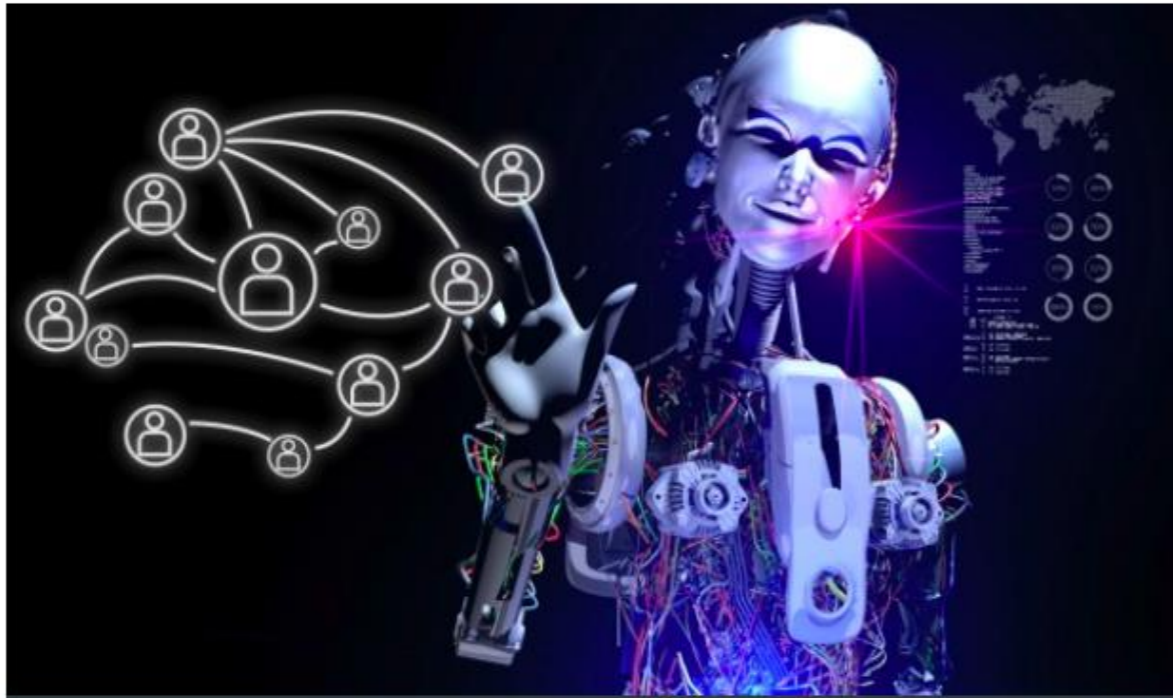
# Where can digitally-enabled education go...beyond where it is now?

- Wrap the university around the student 24/7/365
- Start Anytime - submit your assessment when you're ready
- Flex the learning chunks, find new business models
- Invest in learning design and resources upfront - then manage student engagement, assessment and feedback
- Focus on assessment not teaching
- Redesign the campus learning experience



## Georgia Tech's Ashkok Goel says automated 'nano tutors' will take-off in education

✉ G+ f t in



Using artificial intelligence to answer students' questions will soon be cheap and widely used in education. iStock



hands on simulations  
augmented and virtual reality  
machine learning and analytics  
cognitive computing

Curriculum of the future

5

Teaching-related tasks that can be automated

will be.



# Digitally-enabled 21C learning can be:



f2f on screen  
interactive  
engaging  
hands on  
augmented  
enhanced  
+artificial intelligence

**MOST** importantly:  
human connected learning across  
borders and timezones

# Who engages in digitally-enabled learning and why?

## Everyone:

- blended: enhancement of campus (for every degree)
- fully online (some degrees)

## Why?

- students: access, convenience, personalisation
- providers can achieve reach and scale

Think: postgraduate versus undergraduate learners

# Who and where - and why in higher education?

## Blended at onsite campus:

- school leavers (Australian and international)
- career commencers
- postgraduate international
- in degrees (or parts) that require physical presence

our place  
and pace

## Fully online:

- mature age, postgraduate
- work/life experienced; career advancers or switchers
- doing degrees (or parts) that can be done online
- with MOOCs and on global platforms

their place  
and pace





# Professional development?

Learn (first) how to engage and **connect** with students ...

 1 Discipline knowledge

 2 Communication

 3 Digital literacy

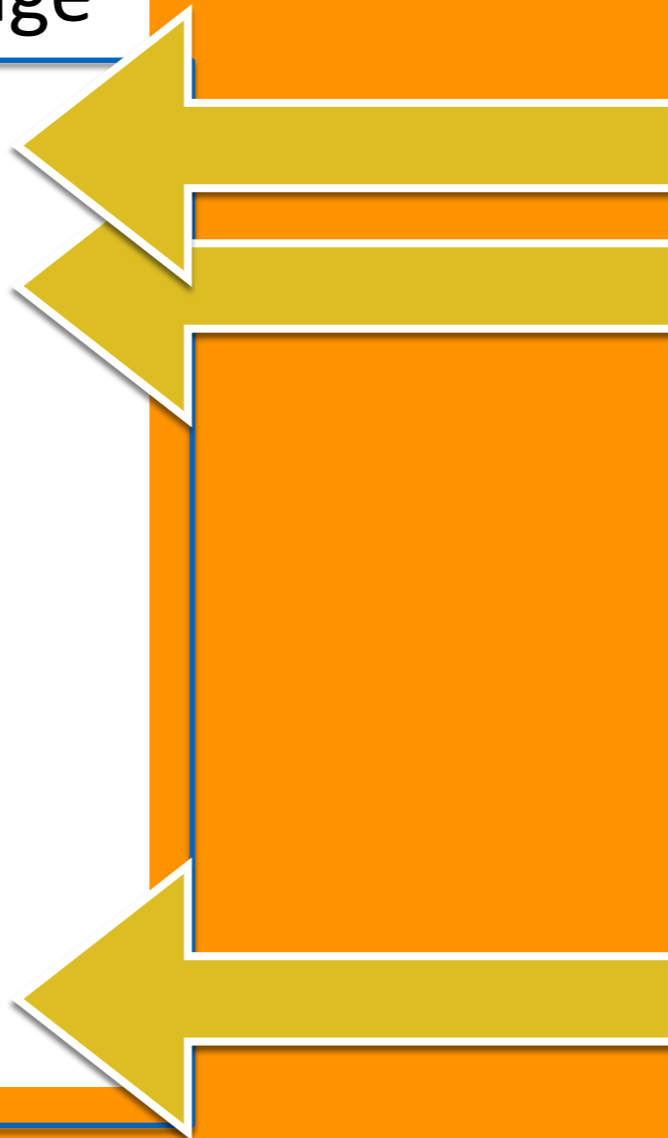
 4 Critical thinking

 5 Problem solving

 6 Self-management

 7 Teamwork

 8 Global citizenship



**Provide new information, enthuse and motivate**

**Engage and connect**

**Authentic and authenticated assessment:**  
interactive simulations, role-plays, virtual reality  
video conference classes and interviews; oral  
assessments, invigilated exams

**Identity management**

**Productivity in a 24/7/365 enterprise**



# What does good digitally-enabled learning look like at D

The screenshot displays the DeakinSync student dashboard. At the top left is the DeakinSync logo. A navigation bar contains icons for Mail, Calendar, People, OneDrive, Skype, Portfolio, Student Connect, STAR, and Apps on Demand. On the right of this bar are Search and Settings icons. Below the navigation bar, the user's profile is shown for Emma Ann Deakin, with ID: Restricted and Bachelor Of Commerce. It indicates 0 credit points achieved to date and includes a 'My Profile' button. To the right, a 'WEEK 3' indicator is shown for 'University Study Week' on Friday, 29th July. Below this is a weather widget for Geelong Waurrn Ponds Campus showing 11° C. A secondary navigation bar includes icons for Home, Units, Favourites, Communities, Featured, Enrolment, fees & money, Studying, Library, Campus, Get started, Jobs & career, Health & wellbeing, Safety and Security, and Help & feedback. The main content area is titled 'Current Units | Course Sites' and features a card for 'MAE101 Economic Principles' with a 'Currently enrolled' status. On the right side, there is a 'Got A Question?' section with a 'WATSON CAN HELP YOU' banner, the text 'I'm lonely, ask me a question.', an 'Ask Now' button, and 'POWERED BY IBM'.





# Graduate Learning Outcomes and employability are hard-wired into DeakinSync

DeakinSync



Mail



Calendar



People



OneDrive



Skype



Portfolio



Student Connect



STAR



Apps on Demand



Search



Settings



## Public profile

Terms of Use

Your Public Profile

<https://sync.deakin.edu.au/profiles/student/tedeaki>

Your profile is public ?

Yes



tedeaki

Check availability



Do you want to use your private email ?



No



### About me

Up to 1000 characters about you, your capabilities, achievements, interests and goals for the future.

I am currently studying a Bachelor of Civil Engineering (Honours) at Deakin University. I have a passion for the built environment, including major infrastructure projects. I have developed strong Teamwork and Communication skills working on numerous group projects and assignments within my coursework.

Last year I was given the opportunity to experience work placement at Lend Lease, a multinational property and infrastructure company. At Lend



### Me in a Minute

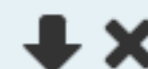
Upload your "Me in a Minute" video showcasing two or three of the Deakin Graduate Learning Outcomes



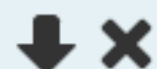
### Showcases

Share your work that meets or exceeds any of the Course Learning Outcomes and Standards for your course

Communication



Critical thinking



But there are challenges:



# MAE101 - Economic Principles - T2 2016

- Home
- Resources
- Discussions
- Assessments
- My Tools
- More
- Portfolio
- Student Help

## Unit Video



Welcome from the Unit Chair  
Welcome from the Unit Chair of MAE101

## Updates

133 Unread Discussion Messages

## Resources

- Bookmarks
- Recently Visited
- Unit Information and Introduction
- Learning Resources
- Assessment Resources
- Echo Class Recordings
- Echo Seminar Recordings
- Seminar Activities Answers

## News

### Assignment 1

Posted 18 July, 2016 8:40 PM

Hi,

Please note that I have updated somewhat the written assignment. This should not affect anyone, as the questions changed relate to material we have not yet covered.

You can commence work on the assignment, I recommend that you tackle the following parts:

**Part 1 Task 1: Industry Structure, part (a) (3 Marks)**

**Task 2: Prices, part (a) (8 Marks)**

**Part 2 Parts (a) and (b) (13 Marks)**

You should all have sufficient knowledge to attempt the above parts of the assignment.

Regards

Chris

### PASS

Posted 11 July, 2016 5:42 PM

Title: DO YOU WANT TO PASS? - STUDY SMART @ PASS

WANT TO MAKE THE MOST OF YOUR UNIT? WANT TO GAIN CONFIDENCE IN YOUR STUDIES? THEN PASS IS FOR YOU!

## My Toolkit

- Video
- Intelligent agents
- User progress
- Release conditions
- Virtual Classrooms
- Classroom capture
- Rubrics
- BCEL**

## Unit Team

**Prof Chris Doucouliagos**

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+61 3 924 46531



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systems  
(LMS)



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**COLLECTIONS**





# Economic Principles



To do



Activity



Study group



Progress



WEEK

1

WEEK

2

WEEK

3

WEEK

4

WEEK

5

WEEK

6

18 Jul

25 Jul

1 Aug

8 Aug

15 Aug

22 Aug

WEEK 1: ANALYSING DOCUMENTS

current week



**Welcome to the course**

An introduction to the course, who we are and what you'll be learning about.

1.1

WELCOME TO THE COURSE ARTICLE

1.2

TAHITIA MCCABE (LEAD EDUCATOR) ARTICLE

1.3

GRAHAM HOLTON (EDUCATOR) ARTICLE

1.4

INTRODUCE YOURSELF DISCUSSION



## Buy a personalised, digital and printed certificate and transcript

You can buy a Certificate of Achievement



# Summing up: 'Cloud first'

connection

image

assessment

feedback

interactivity

cloud

BEFORE

content

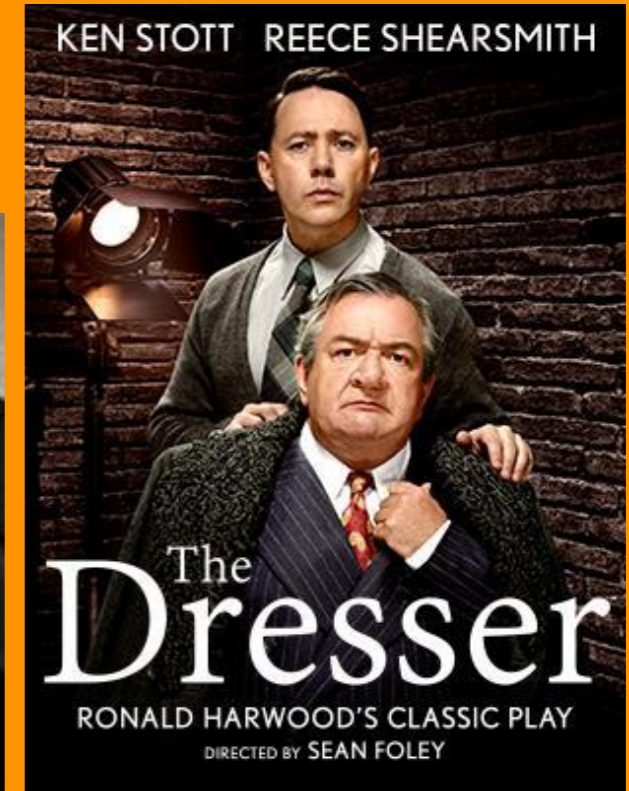
text

teaching

marks

passivity

campus



It's quality digitally-enabled learning if it delivers the right learning outcomes in the right way...for the right students' futures.







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