



FACTOR



Curriculum management for student success

## About the presenter



### Brian Clark, CEO, Factor5 Software

Former Software Engineer – Defence and e-commerce

Former GM of Technology – Banking and Finance

Former CIO – Large Australian Dual Sector University

Current Curriculum Management Evangelist

And...

Amateur Under 10 Girls Basketball Coach

Amateur Barista

Amateur Cyclist

# Who is Factor5?

Began building CourseLoop in September 2015

Singularly focused on Curriculum Management

First client – Monash University – live in July 2016

9 Australian University clients

First UK client recently secured

48 employees and growing

HQ in Melbourne, Australia

Growing UK/Europe presence



Who have we helped with curriculum management?



We started this journey by looking at how we could help students make better informed academic choices about their programs of study.



So, we asked: where are the problems and how we can help in this process?

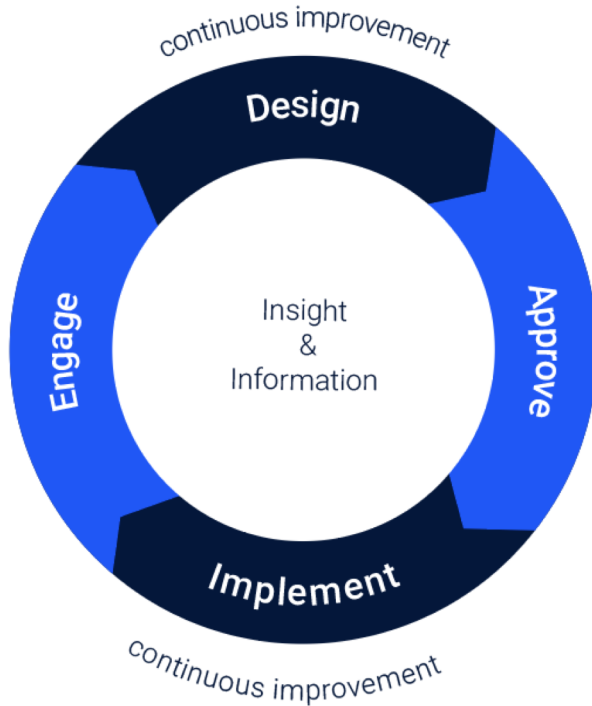
Engage students with the curriculum choices and help improve overall student success and experience.

Poor student and staff experience, with technology built from 'Inside-Out'.

Spreadsheets and word documents acting as databases, email pretending to be workflow.

Limited market solutions that addressed curriculum management end-to-end.

And we built a model, because I like models.



### Design

Collaborative design and creation of the curriculum

### Approve

Governing the curriculum baseline and proposed changes

### Implement

Publishing and implementing the curriculum information

### Engage

Student and staff engagement with curriculum information

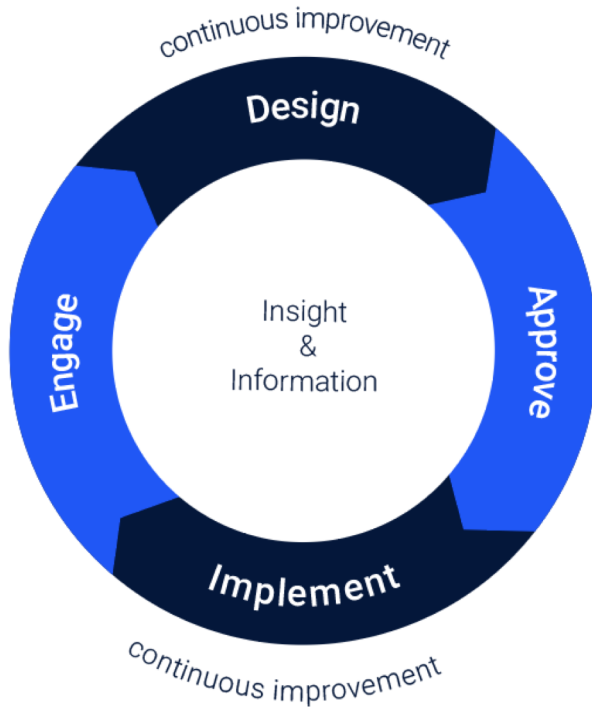
### Continuous Improvement

Ongoing curriculum review and improvement activities

### Insight and Information

Definitive source of truth for curriculum information and actionable insight

And then we built applications to address the key process areas of the model.



### Design

Program and Course design  
Learning outcome development  
Curriculum mapping



Assurance

### Approve

Proposal workflow management  
Governance decision making  
Committee and document management



Lifecycle

### Implement

Publishing and marketing  
Enterprise integration  
Data control and management



Curriculum

### Engage

Student study planning  
Guided enrolment  
Progress and graduation monitoring



Advisor

### Platform

Collaboration Tools • Notification Engine • Task Management  
User and Role Management • Reporting • APIs • Auditing and Security



If you are sleeping, it's not my fault (well it could be my fault, but it could also be the building).



Dr Adam Ginsburg is fighting conference-induced lethargy by tackling high levels of carbon dioxide at **academic gatherings** – one window at a time.

A growing body of evidence suggests that poor ventilation in the spaces typically used for conferences results in a **build-up of carbon dioxide** levels that can lead to poor concentration and **drowsiness** among the people gathered.

Our experience suggests that taking an end-to-end and incremental approach to approving curriculum management is best.

5. Engage students in the curriculum for success.

4. Model and map deep curriculum relationships.

3. Make use of the approved curriculum information across the institution.

2. Define and implement a nimble and diligent governance model.

1. Establish a structured curriculum model with a robust data and rules baseline.

If you want to use your curriculum information across the institution, then you need that data in a structured curriculum information repository.

## 1. Establish a structured curriculum model with a robust data and rules baseline.

The screenshot displays a course catalog interface with several panels. The 'Core Units' panel lists units like UXB100, BSB113, LWS012, USB300, UXH300, UXH400-1, and UXH400-2. The 'Discipline' panel lists units like UXB110, UXB111, UXB112, UXB113, UXB114, UXB115, UXB210, and UXB211. The 'Second Majors' panel lists units like UXB100, BSB113, LWS012, UL01, UL02, UL03, UL04, UL05, USB300, UXB301, and UXH300. A 'Learning Activities' table is also shown.

Activity	Duration	Frequency
Lecture Seminar	1 hour	Weekly
Tutorial	2 hours	Weekly
Workshop	1 hour	Daily

Ensuring you have the latest approved curriculum information in your repository requires governance and approval processes.

## 2. Define and implement a nimble and diligent governance model.

The screenshot displays the Courseloop curriculum management interface. The top navigation bar includes tabs for 'Ongoing Proposals', 'Planning Proposals', 'Full Proposals' (selected), and 'Curriculum Reviews'. Below the navigation bar, there is a search bar and a checkbox for 'My Full Proposals'. A 'Show applied filters' button is also present.

The main content area shows a list of ongoing proposals. Each proposal is represented by a card with a category (COURSE, MINOR, SUBJECT), a title, a version number, and a progress bar indicating the current level (Level 1, Level 4, etc.).

A detailed view of a curriculum proposal is shown in the foreground. The proposal is for 'Neuropsychology' and is in 'DRAFT' status. It lists several courses with their versions, statuses, stages, and approval levels.

COURSE	VERSION	STATUS	STAGE	APPROVAL LEVEL
PSYC1020	2019.01	Archived	Complete	University Approval
PSYC1020	2019.02 BASED ON 2019.01	Approved	Complete	School Approval
PSYC1020	2020.01 BASED ON 2019.02	Proposed		University Approval
PSYC1030				
PSYC1040				
PSYC2010				

A 'Stage Progression' pop-up is visible, showing a progress bar with three stages: 'Board of Studies' (in progress), 'Implementation' (in progress), and 'Complete' (completed).

Having a definitive source of truth for your curriculum information is paramount but only if you can make use of it across your entire institution.

### 3. Make use of the approved curriculum information across the institution.

#### Learning outcomes

At the successful completion of this Unit students should

- 1 recognise the relationship between a problem de and program design
- 2 implement problem solving strategies
- 3 demonstrate how basic data structures (list, grap
- 4 investigate different strategies for algorithm deve
- 5 decompose problems into simpler problems;
- 6 determine the complexity of simple algorithms;
- 7 recognise the limitations of algorithms.

Expand all

#### This unit applies to the following area(s) of study

Undergraduate minor, major or extended major	Expand all
Business analytics - Business and Economics <b>B200 Business</b>	▼
Business analytics - Business and Economics (Honours) <b>B2007 Business Administration</b>	▼
Business analytics - Business and Economics <b>B200 Business</b>	▼
Business analytics - Business and Economics (Honours) <b>B2007 Business Administration</b>	▼
Business analytics - Business and Economics <b>B200 Business</b>	▼
Business analytics - Business and Economics (Honours) <b>B2007 Business Administration</b>	▼
Business analytics - Business and Economics <b>B200 Business</b>	▼

#### Web Services

- > Field of Education
- > User
- > Subject
- > Tag Definition
- > Minor
- > Location
- > Offering
- > Requisite
- > Module
- > Attachments
- > Academic Org Unit
- > Area of Study
- > Master Records
- > Course
- > Events
- > Co-Major
- > Teaching Period
- > Major
- > Reference Data Choice
- > Delivery Mode
- > Academic Item
- > Curriculum Structure

#### Academic Org Unit

CourseLoop

<https://courseloop001.service-now.com/>

#### methods

PATCH /api/x\_fs1\_cl/v3/academic\_org\_unit/{cl\_id} PATCH Academic Org Unit

Parameters

Name	Description
cl_id string (path)	32-bit alphanumeric string used to uniquely identify a record

Request body [application/json](#)

Example Value Model

```
{
  "ext_id": "",
  "code": "COMM",
  "name": "twisting faculty",
  "active": "true",
  "obsr_name": "DO BE DELETED"
}
```

Creating relationships between objects in your curriculum information repository allows reuse and supports accreditation and other quality assurance processes.

#### 4. Model and map deep curriculum relationships.

The screenshot displays the CourseLoop curriculum mapping interface. On the left, a sidebar lists Discipline Standards (1. Knowledge, 2. Judgement, 3. Self Development, 4. Communication, 5. Innovation, 6. Engagement) and CLOs (CL01 to CL06, with sub-items like CL03.1, CL03.2, etc.). The '4. Communication' standard is selected. In the center, a list of Core Units (UXB100, BSB113, LWS012, ULO1 to ULO5, USB300, UXB301, UXH300) is shown. The 'ULO1' unit is selected. On the right, a detailed view of the 'Professional communication' CLO is shown, with sub-items 1.1 and 1.2. A 'Relationship' dialog box is open, showing a 'Bachelor of Accounts' program with a '25% Report' and a 'Description' field. The dialog also shows 'Due' date (13/02/2019), 'Graduate Attributes' (Ethics, Social Interaction), and 'Layout' (Individual). At the bottom, a progress bar indicates the status of the curriculum: Introduced (0%), Developed (100%), and Mastered (0%).

Discipline Standards

- 1. Knowledge
- 2. Judgement
- 3. Self Development
- 4. Communication
- 5. Innovation
- 6. Engagement

CLOs

- CL01 Discipline Knowledge
- CL02 Strategic & Innovative Thinking
- CL03 Communication & Collaboration
  - CL03.1 Written Communication
  - CL03.2 Oral Communication
  - CL03.3 Negotiation
- CL04 Research
- CL05 Collaboration
- CL06 Professional & Ethical Identity
  - CL06.1 Adapting to Challenges
  - CL06.2 Reflection
  - CL06.3 Ethical Identity

Core Units

- UXB100 Design-thinking and Communication for the Built
- BSB113 Economics
- LWS012 Urban Development Law
- ULO1
- ULO2
- ULO3
- ULO4
- ULO5
- USB300 Property Development
- UXB301 Professional Placement
- UXH300 Research Methods for the Future Built Environment

Course Learning Outcomes

- 1 Professional communication
  - 1.1 Communicate mathematical and/or statistical information, arguments and results to diverse audience using a variety of formats.
  - 1.2 Demonstrate critical thinking and problem solving skills across a range of applied mathematical and statistical context.
- 2 Application
  - 2.1 Demonstrate aptitude in computer programming, and familiarity with industry-learning leaning programming languages and relevant specialised

Unit Learning Outcomes

- 1 Demonstrate facility range of analytical techniques and tools appropriate to making informed financial management decisions.
- 2 Work collaboratively with others to achieve shared objectives.
- 3 Evaluate the limitations of financial decision-making tools and analytical techniques.

Relationship

Bachelor of Accounts

25% Report

Description

Vivamus sagittis lacus vel augue laoreet rutrum faucibus dolor auctor. Aenean eu leo quam. Pellentesque ornare sem lacinia quam venenatis vestibulum.

Due

13/02/2019

Graduate Attributes

Ethics

Social Interaction

Layout

Individual

25% Presentation

40% Portfolio

10% Teamwork

Introduced — Developed — Mastered

# Building on the foundations and structured data enables the cool stuff.

## 5. Engage students in the curriculum for success.

Bachelor of Science (BSc)  
Major in Marine Biology

S8798

3  
Years

72  
Points

Student type  
Domestic

Location  
Melbourne

Load  
Full-time

Plan your course

Here's what you need to do to get your course plan ready

[More actions](#)

3 Remaining

Outline

Timeline

General Education

Choose 6 points

Core Units

Choose 6 points

Optional Units

Choose 18 points

Major Prerequisites

Based on your background in **Mathematics & Chemistry**, you do not need to any additional units

General Education

Choose 6 points of units

3 Points Chosen

9

What is Science?

3  
PTS

Choose a University Wide Unit

Choose a University Wide Unit

Core Units

Choose 12 points of units

6 Points Chosen

12

Building Blocks for Science

3

Applied Mathematics

3

Choose a University Wide Unit

### Workload and Assessments

Campus

Semester 1

[Expand all](#)

#### Workload

The workload to achieve the learning outcomes for this unit is 144 hours spread across the semester.

Activity

Sequence



Our experience suggests that taking an end-to-end and incremental approach to approving curriculum management is best.

5. Engage students in the curriculum for success.

4. Model and map deep curriculum relationships.

3. Make use of the approved curriculum information downstream.

2. Define and implement a nimble and diligent governance model.

1. Establish a structured curriculum model with a robust data baseline.



A bonus for curriculum management – supporting Micro-credentials.

What Are What Are They?

# What Are Micro-Credentials?

## SUNY Micro-Credentials:

- verify, validate and attest that specific skills and/or competencies have been achieved;
- are endorsed by the issuing institution;
- having been developed through established faculty governance processes; and
- are designed to be meaningful and high quality.

...and thousands more.

Micro-credentials are still in early stages of definition and development.

## Providing insight beyond degrees and transcripts

### Specific, stackable credit

Micro-credentials can be grouped, aggregated or 'stacked', so learners have flexibility in sourcing learning, and can build their micro-credentials into a larger, and more recognisable, aggregated award.

### General recognition of prior learning

Micro-credentialing is seen by both individuals and higher education providers as a legitimate means of evidencing not only learning or competence credited by other institutions, but also that attained in the workplace or in other forms of informal learning.

### Evidence of graduate attributes

Because micro-credentials focus on small, discreet components of learning, they are particularly useful in providing the evidentiary base for graduate attributes typically not referenced in degree transcripts. These attributes include so-called soft skills, specific specialist professional skills and competencies, and metacognitive skills.

### Warranting professional and continuing education

Micro-credentials can be applied to standards-based competencies associated with professional practice, supporting a growing world-wide interest in warranting continuing professional development and education.

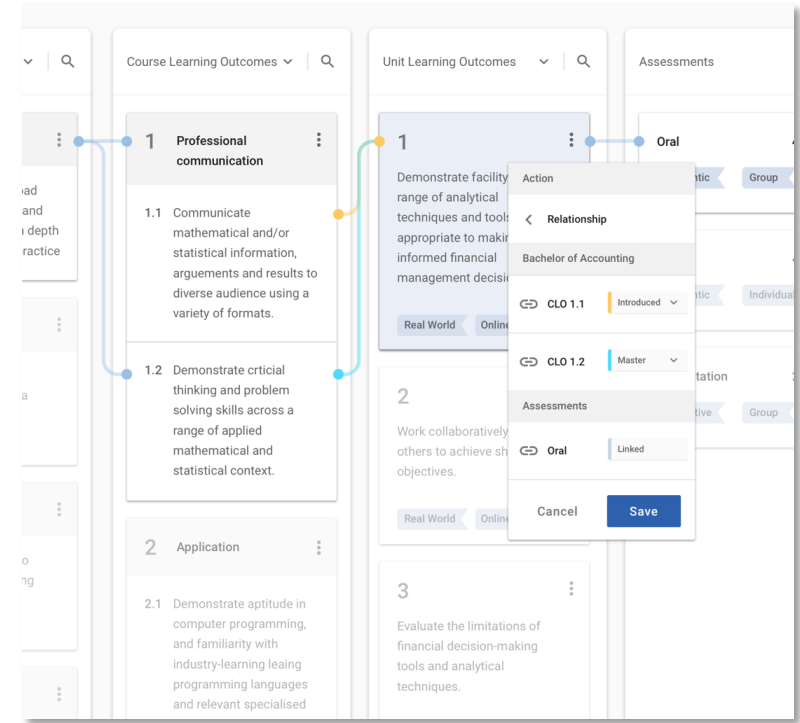
# Leveraging curriculum mapping can help you instrument your curriculum to drive micro-credentialing.

Many Professional Accreditation standards are competency-based or competency-led.

Curriculum mapping links these competencies as defined by a standard, to learning outcomes, learning activities, assessments, etc.

Mining the curriculum via mapping could surface existing micro-credentialing opportunities.

Micro-credentials can also simply be a form of curriculum item that's designed, built, mapped and offered to students, using new and existing curriculum elements.





Q&A - Discussion

