Working from the evidence of prior art and experience in curriculum database development

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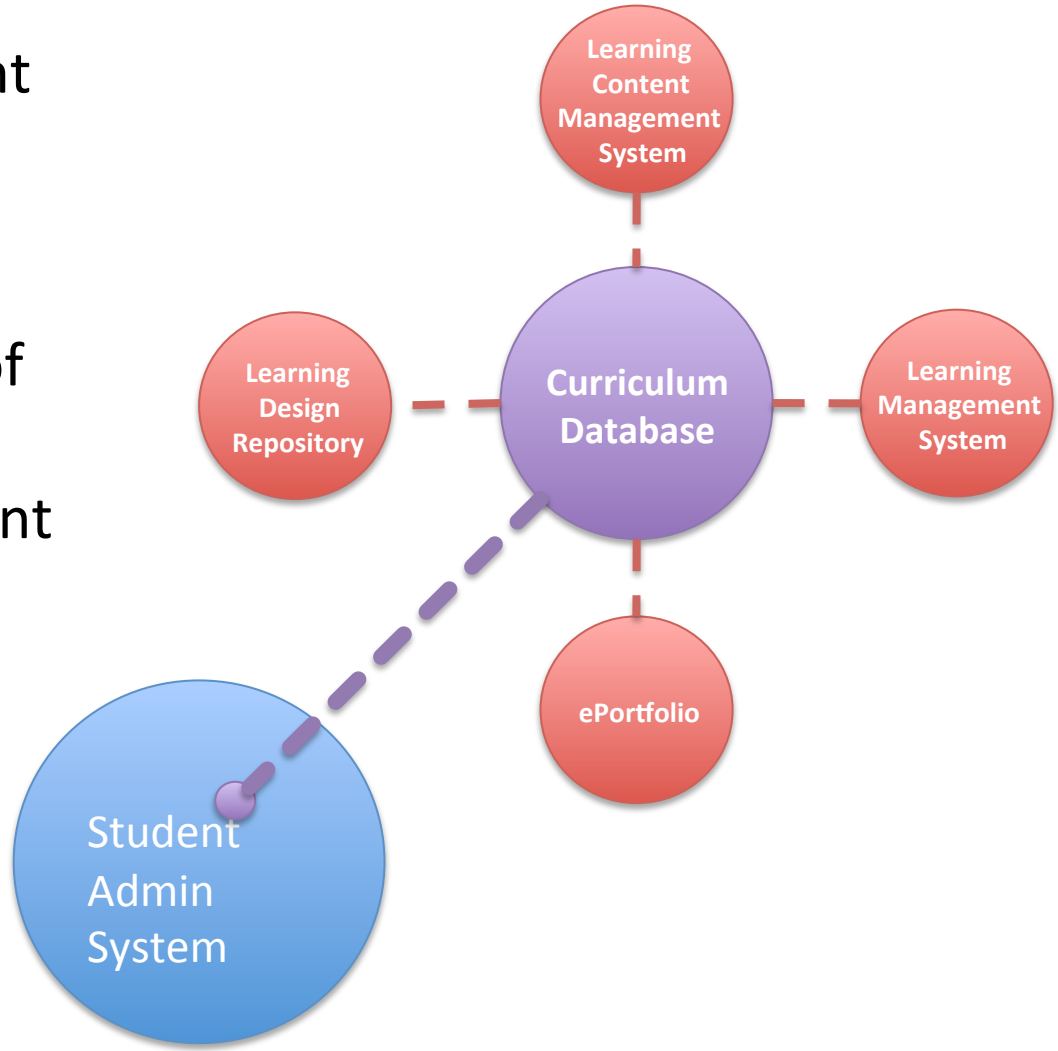
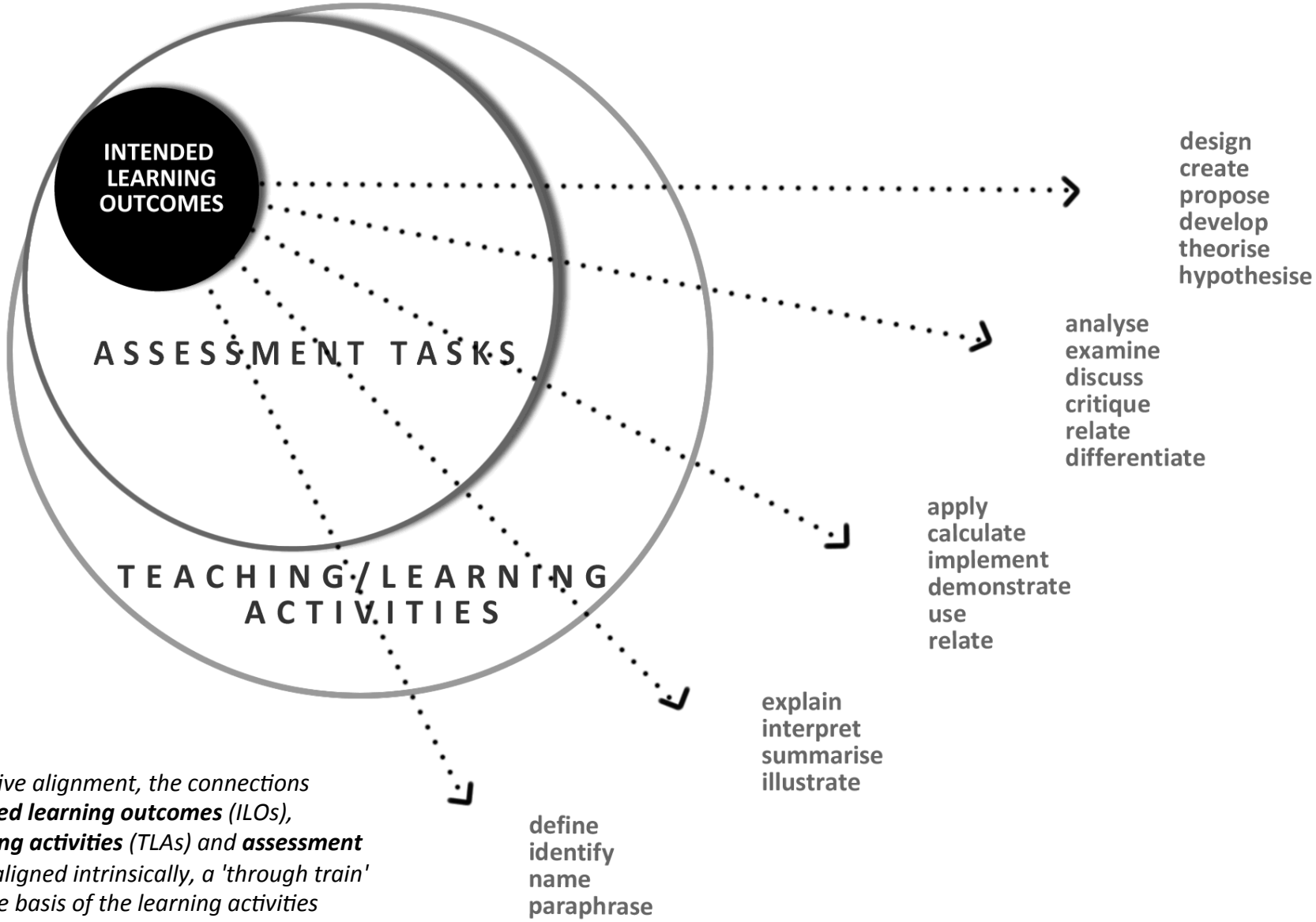
What are curriculum databases?

A. Curriculum management *tool*: reporting on curriculum design

B. Emerging core system of university curriculum information management



Curriculum model: top-down, outcomes based



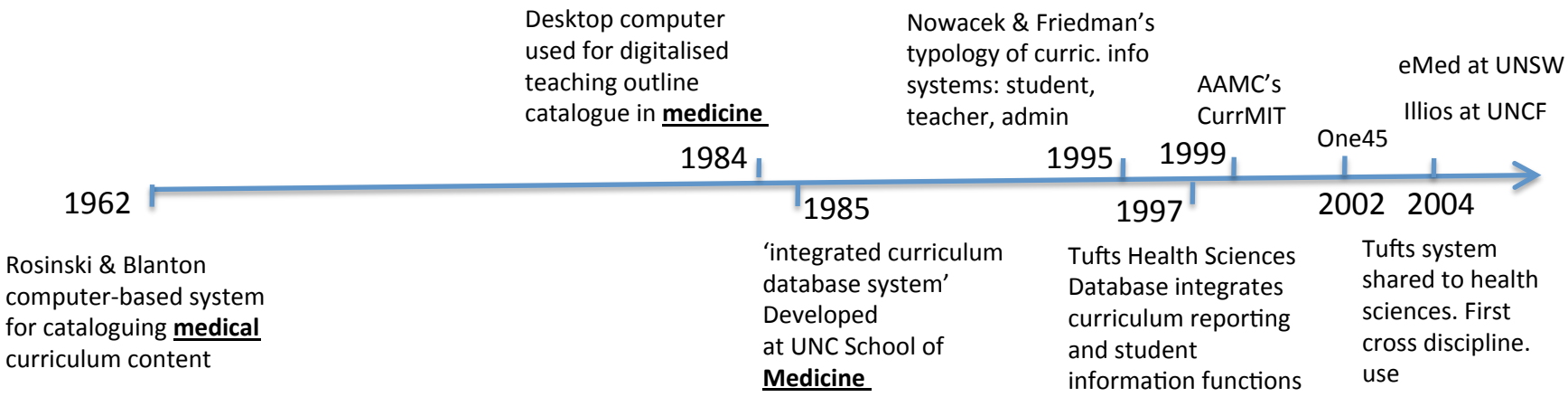
*'. . . In constructive alignment, the connections between **intended learning outcomes** (ILOs), **teaching/learning activities** (TLAs) and **assessment tasks** (ATs) are aligned intrinsically, a 'through train' if you like, on the basis of the learning activities expressed in the outcomes statements.' (Biggs & Tang, 2007, p.53)*

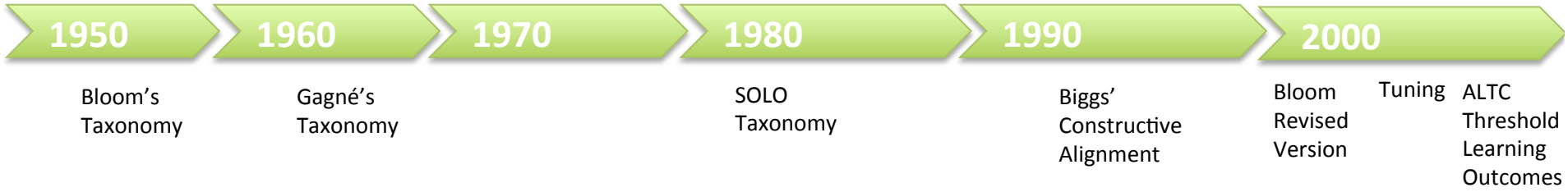
Development challenge: non-aligned curriculum environment

"*It is so obvious. Yet most university teaching is not aligned*." (Biggs & Tang, 2007: 61)

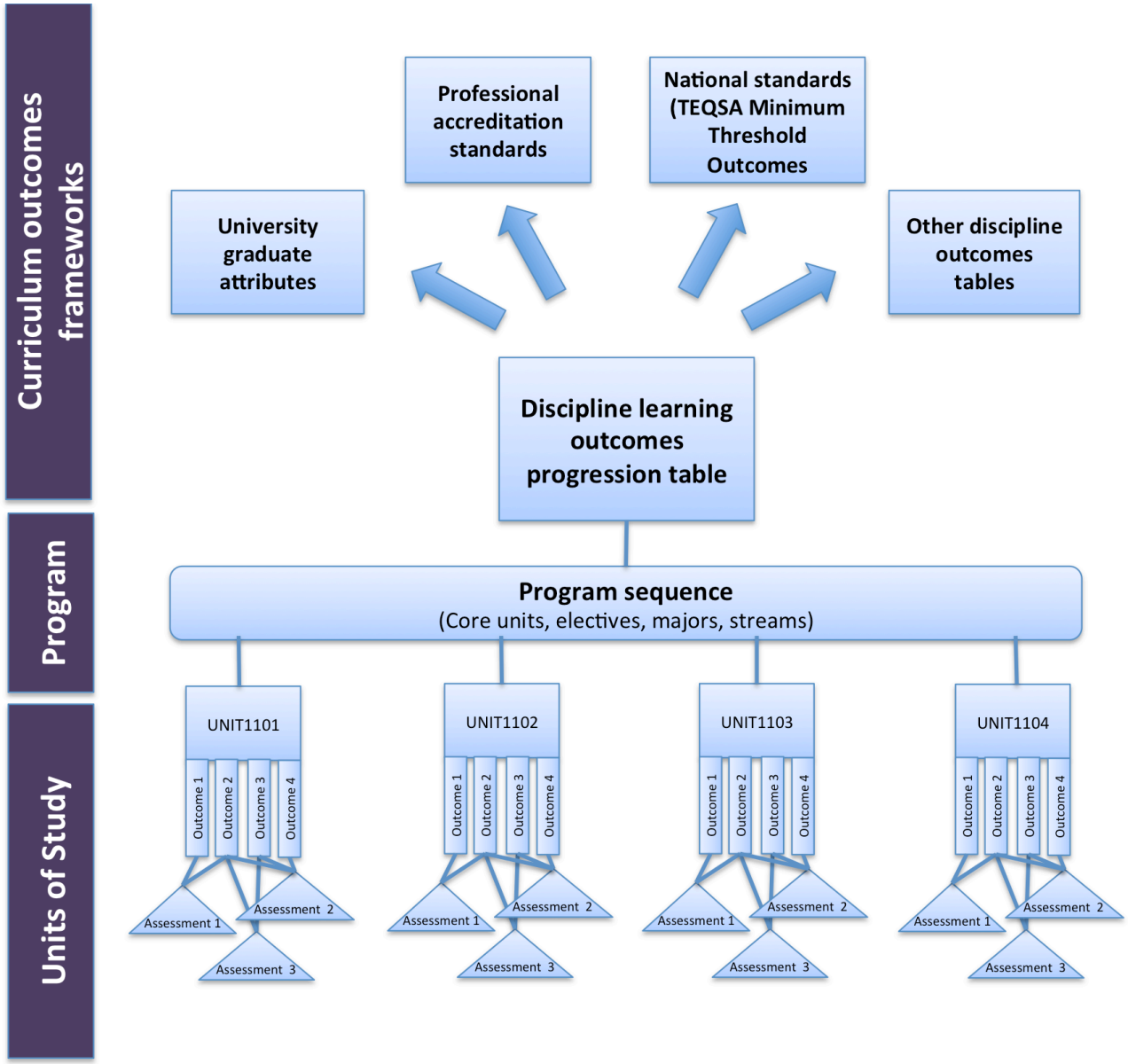
"*University courses are often not developed as a coherent whole but as a pastiche of individual units*" (Toohey, 1999: 49)

Curriculum databases: a brief (medical) history



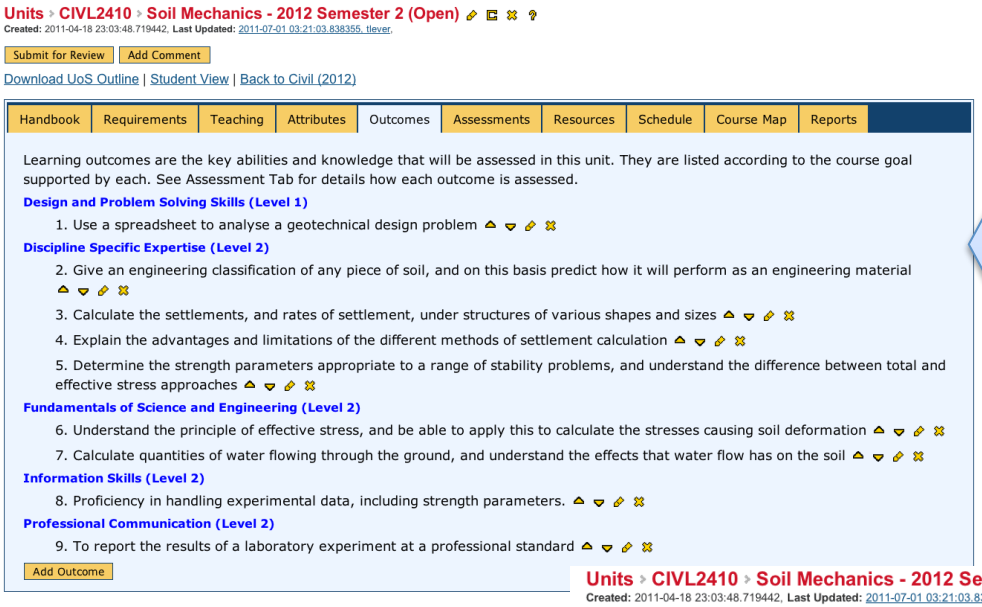


U. of Sydney curriculum database (CUSP)



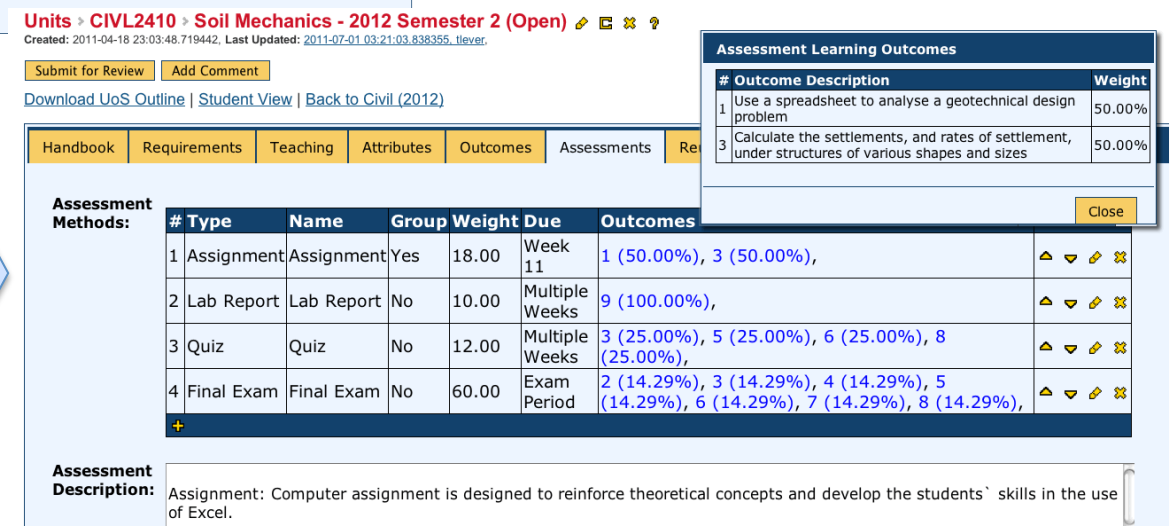
- Starting in 2003 as a single discipline, engineering-based unit of study database.
- Since 2010, a multi-faculty, multi-discipline curriculum information management system
- Connects three critical layers of curriculum information: unit of study design, program design, curriculum outcome framework.

Basic content layer: subject/unit of study outlines

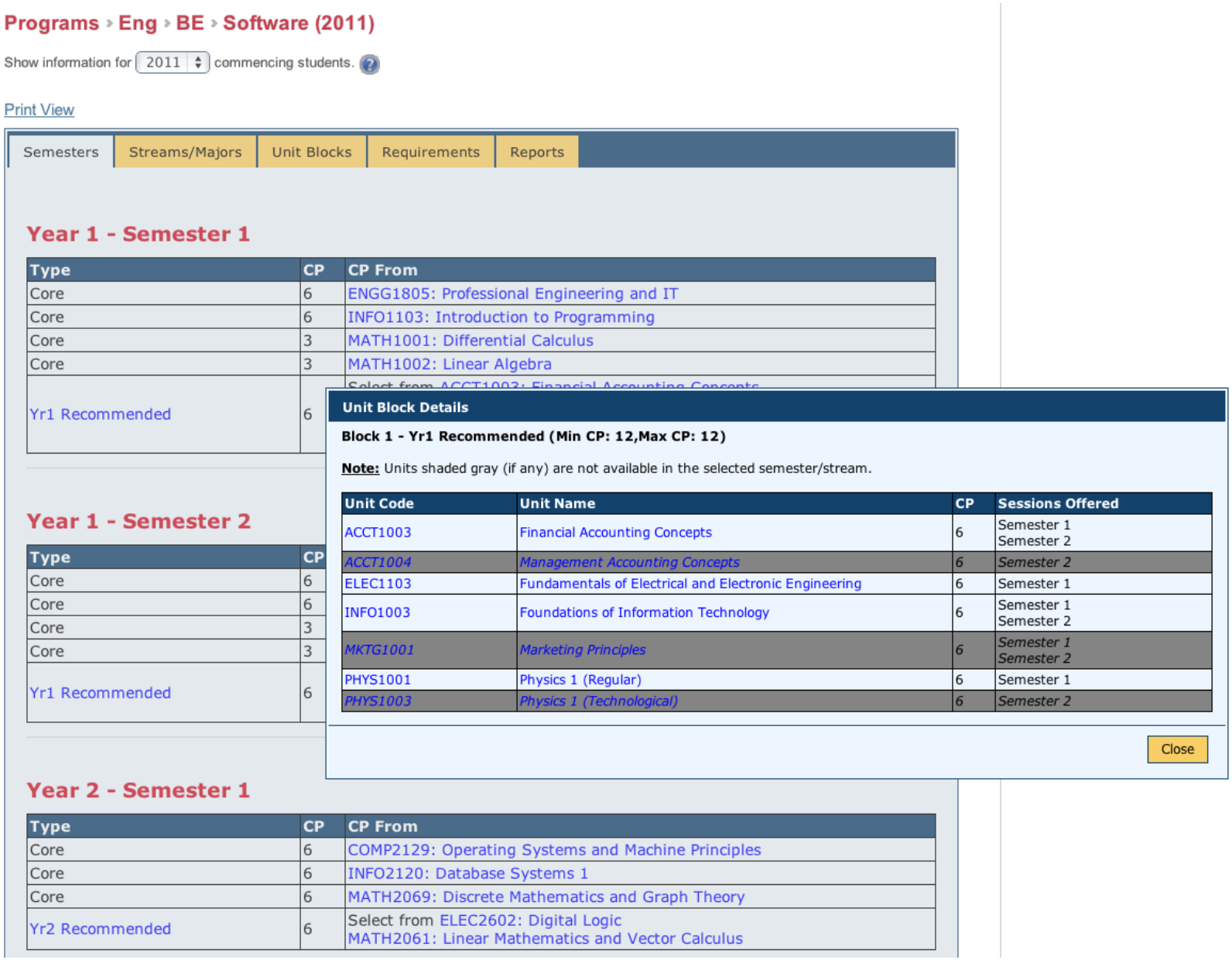


Unit learning outcomes address *selected* discipline outcomes

Unit assessment tasks address unit learning outcomes at specific values



Middle curriculum layer: program structure



Programs › Eng › BE › Software (2011)

Show information for 2011 commencing students.

Print View

Semesters | Streams/Majors | Unit Blocks | Requirements | Reports

Year 1 - Semester 1

Type	CP	CP From
Core	6	ENGG1805: Professional Engineering and IT
Core	6	INFO1103: Introduction to Programming
Core	3	MATH1001: Differential Calculus
Core	3	MATH1002: Linear Algebra
Yr1 Recommended	6	Select from ACCT1003: Financial Accounting Concepts

Year 1 - Semester 2

Type	CP
Core	6
Core	6
Core	3
Core	3
Yr1 Recommended	6

Year 2 - Semester 1

Type	CP	CP From
Core	6	COMP2129: Operating Systems and Machine Principles
Core	6	INFO2120: Database Systems 1
Core	6	MATH2069: Discrete Mathematics and Graph Theory
Yr2 Recommended	6	Select from ELEC2602: Digital Logic MATH2061: Linear Mathematics and Vector Calculus

Unit Block Details

Block 1 - Yr1 Recommended (Min CP: 12,Max CP: 12)

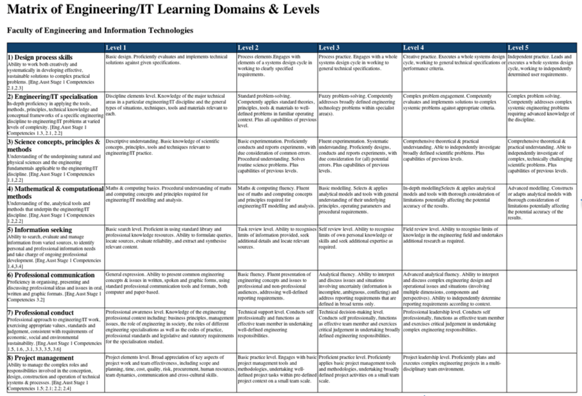
Note: Units shaded gray (if any) are not available in the selected semester/stream.

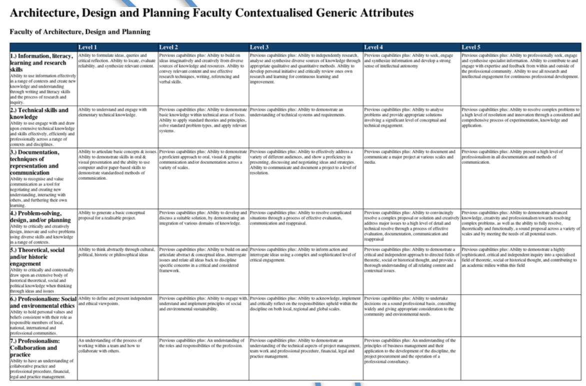
Unit Code	Unit Name	CP	Sessions Offered
ACCT1003	Financial Accounting Concepts	6	Semester 1 Semester 2
ACCT1004	*Management Accounting Concepts*	*6*	*Semester 2*
ELEC1103	Fundamentals of Electrical and Electronic Engineering	6	Semester 1
INFO1003	Foundations of Information Technology	6	Semester 1 Semester 2
MKTG1001	*Marketing Principles*	*6*	*Semester 1* *Semester 2*
PHYS1001	Physics 1 (Regular)	6	Semester 1
PHYS1003	*Physics 1 (Technological)*	*6*	*Semester 2*

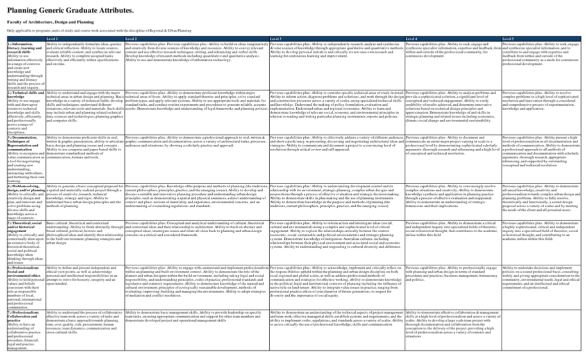
Close

Top curriculum layer: discipline outcomes tables

- Engineering-IT Graduate Outcomes Table
- Architecture, Design and Planning Faculty Contextualised Generic Attributes
- Planning Generic Graduate Attributes
- Commerce Program-Level Learning Goals







Program Goal Matrix for Commerce & Business Teaching Programs

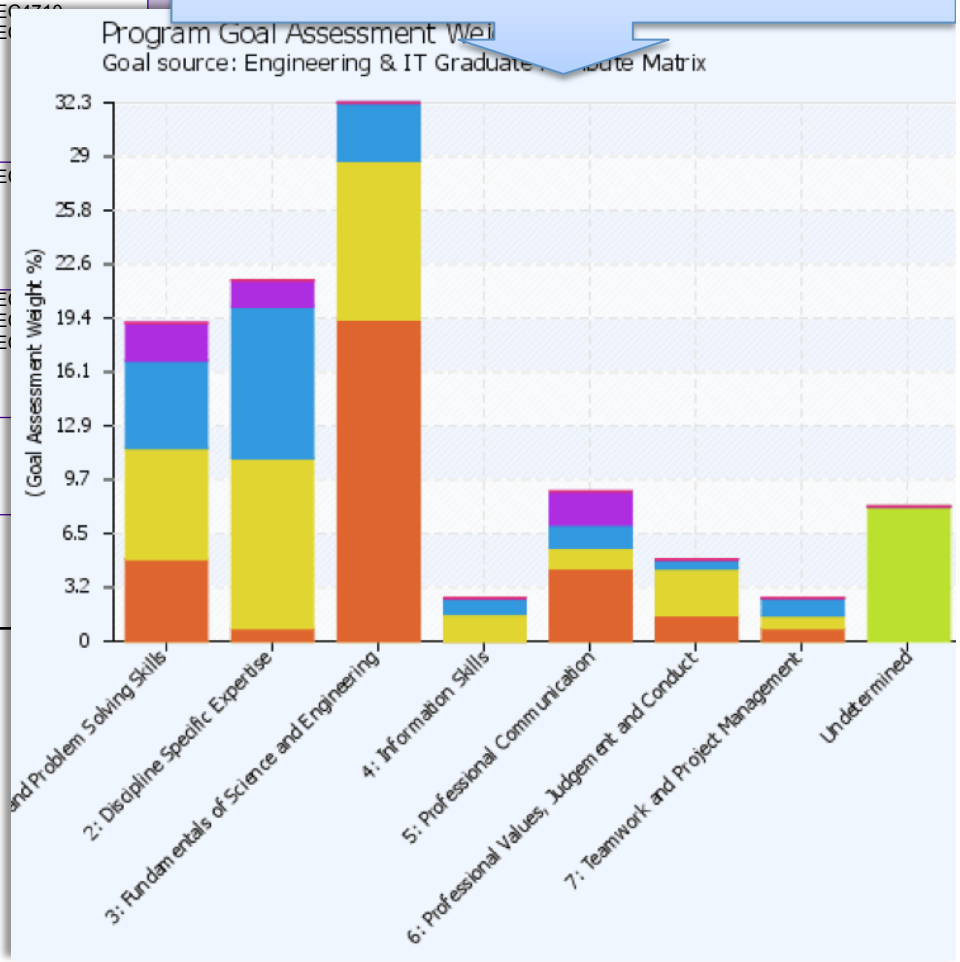
	Level 1: Orientation level	Level 2: Discussion level	Level 3: Decision-making level	Level 4: Strategy level	Level 5: Leadership level
# 1) Business context o Understand contemporary business contexts and the role of commercial, economic and business fundamentals in those contexts.	*Common business and economic concepts.*	*Standard applications of common concepts.*	*Making sound business judgements.*	*Making sound business plans.*	*Providing sustained business vision.*
# 2) Business research and analysis o Critically analyse and interpret commercial, economic and business information to develop solutions and responses to business problems and challenges.	*Basic information search and analysis.*	*Broad information search and analysis.*	*Investigation of complex and challenging business data.*	*Investigation of complex and challenging business situations.*	*Major business research/development project.*
# 3) Business communication o Communicate effectively, both orally and in writing, including the ability to negotiate and persuade in business context.	*Basic reporting.*	*Fluent reporting.*	*Business debate.*	*Business negotiation.*	*Business communications management.*
# 4) Teamwork o Work effectively in organisation with diverse colleagues, in teams, and with clients, institutions and other stakeholders.	*Basic team awareness.*	*Basic team practice.*	*Sustained team practice.*	*Adaptive team practice.*	*Sustained leadership practice.*
# 5) Business innovation o Learn and creatively apply new commercial, economic and business knowledge.	*Basic concept generation.*	*Theoretical grounding of business change and innovation*	*Practical optimisation of new business ideas.*	*Creatively addressing complex business challenges.*	*Creatively addressing complex and changing business situations.*
# 6) Business specialisation o Develop discipline-specific expertise developed in a major or majors and be able to apply that expertise in a broad business context.	*Basic discipline / specialisation awareness.*	*Standard discipline / specialisation applications.*	*Fluent and flexible use of standard applications.*	*Dealing with challenges at both conceptual and technical level.*	*Extending knowledge boundaries.*

Curriculum reporting & analysis level

	Level 1	Level 2	Level 3	Level 4	Level 5
1. Design & Problem Solving	ELEC1103, ELEC1601, ENGG1805	ELEC2103, ELEC2104, ELEC2302, INFO1105	ELEC2602, ELEC3305, ELEC3505, ELEC4702	ELEC3405, ELEC3506, ELEC4505, ELEC4710, ELEC4711	
2. Discipline Specific Expertise	ENGG1805, INFO1103	COMP2129, ELEC1103, INFO1105	ELEC2103, ELEC2104, ELEC2302, ELEC2602, ELEC3305, ELEC3505	ELEC4702, ELEC4710, ELEC4711	ELEC3405, EL
3. Fundamentals of Science & Engineering	ENGG1805, MATH1001, MATH1002, MATH1003, MATH1005, PHYS1001, PHYS1003, PHYS2213	COMP2129, ELEC1103, ELEC1601, ELEC2103, ELEC2104, MATH2061	ELEC2302, ELEC2602, ELEC3305, ELEC3405, ELEC3506, ELEC4505, ELEC4702, ELEC4710, ELEC4711	ELEC4702, ELE	
4. Information Skills		ELEC1103, ELEC2103, ELEC2104, ELEC2302, ELEC2602, ELEC3305, ELEC3405, ELEC4505, ENGG1805		ELE	
5. Professional Communication	ELEC1103	ELEC1601, ELEC2103, ELEC2104, ELEC2302, ELEC2602, ELEC3405, ELEC3506, ELEC4505, ENGG1805	ELEC3305	ELE ELE ELE	
6. Professional Values, Judgment & Conduct	COMP2129, ELEC1103, ELEC1601, ELEC2103	ELEC3505, ENGG1805	ELEC4702		
7. Teamwork & Project Management	ELEC1103, ELEC2103, ELEC2302, ELEC2602	ELEC1601, ELEC2104, ELEC3305, ELEC3405, ELEC3505, ELEC3506, ELEC4702, ENGG1805			

Unit of study progression matched to discipline learning progression

Relative weight of outcome domains and levels as proportion of assessment across program as a whole



Lesson No.1: Limits of top-down, outcomes-based curriculum management in university context

- Misdirected focus on unit-level teaching delivery
- Insufficient to macro-level program coherence
- Superficial approach to program outcome formulation, fails to address complexities of broad-scale curriculum design

Lesson No.2: Program outcome frameworks have some minimum requirements

STRUCTURE

1. Program minimum goals defined within separate framework of discipline learning progression?
2. Domains and levels clearly & logically differentiated among themselves?
3. Clear, logical differentiation relative to other disciplines?

PROCESS

4. Iterative refinement in context of disciplinary and cross-disciplinary practice

ENVIRONMENT

5. Information system support for rapid, iterative prototyping & refining

	Level 1 Business principles	Level 2 Business operations	Level 3 Business specialisation	Level 4 Business innovation	Level 5 Business leadership
1. Business fundamentals	Basic concepts, principles and issues of commercial practice.	General applications of commercial concepts and principles in real-life business situations	Specialised applications of commercial concepts and principles in real-life business situatio	Innovative applications of commercial concepts and principles in real-life business situations.	Applications of commercial concepts and principles in real-life business leadership..
2. Business context	Basic concepts, principles and issues including legal, political, environmental and ethical aspects.	General applications of concepts and principles regarding the broad business context in real-life business situations.	Specialised applications of concepts and principles regardi the broad business c xt in real- life busines situations.	Innovative applications of concepts and principles regarding the broad business contexts in real- life business situations.	Applications of concepts and principles regarding the broad business context in real-life business leadership.
3. Business research & analysis	Basic information search and analysis. Ability to undertake a targeted business information search across a limited range of information sources.	Broad information search and analysis. Ability to undertake a broad business information search across an open-ended range of sources; extract and sythesise relevant d ls.	Investigation of complex and challenging business data. Ability to identify gaps, irregularities uncertainties in reports and data sets of varying quality.	Investigation of complex, challenging business situations. Forming independent views through searching review of evidence, identifying the real questions to be asked and how they may be best answered.	Major business research/ development project. Ability to undertake an in-depth business research project addressing a significant business challenge, requiring extensive first hand evidence and original analysis.
4. Business communication	Ability to communicate basic business concepts & issues in written and spoken form.	General fluency in business communication. across a variety of formats and media	Specialist fluency .Ability to successfully debate contested business ideas and issues at length in written and spoken form.	Strategic fluency in business communication. Ability to shape and drive team discussions and perceptions.	Strategic fluency at leadership level. Ability to shape and drive broad organisational discussion and perceptions.
5. Business organisation	Basic principles and techniques: team planning and decision-making, knowledge sharing, mutual support and negotiating differences.	General applications of organisation techniques and principles in real-life situations requiring general negotiati of roles and respon ities	Specialised applications of organisation techniques and principles in real-life business situations. requiring specialised roles and capabilities.	Innovative applications of organisation techniques and principles in challenging business situations,. requiring team flexibility..	Applications of organisation techniques and principles in real-life business leadership.

Commerce Program Goals (Draft proposal). **The University of Sydney Business School)**
http://cusp.sydney.edu.au/attributes/view-attribute-set-pdf/competency_set_id/63/extended/0

Curriculum standards development, Australia, 2012

3.2 Threshold Learning Outcomes for Accounting

Column1	Bachelor graduates in Accounting will be able to:	Master
Judgement	Exercise judgement under supervision to solve routine accounting problems in straightforward contexts using social, ethical, economic, regulatory and global perspectives	Exerci proble and gl
Knowledge	Integrate theoretical and technical accounting knowledge which includes a selection of auditing and assurance, finance, economics, quantitative methods, information systems, commercial law, corporation law and taxation law	Integra a sele metho taxatic
Application Skills	Critically apply theoretical and technical accounting knowledge and skills to solve routine accounting problems	Critica to solv
Communication and Teamwork	Justify and communicate accounting advice and ideas in straightforward collaborative contexts involving both accountants and non-accountants	Justify collab
Self-Management	Reflect on performance feedback to identify and action learning opportunities and self-improvements	Seek a opport

Australian Learning and Teaching Council (2010). Learning and Teaching Academic Standards Project, Business, Management and Economics: Learning and Teaching Academic Standards Statement for ACCOUNTING December 2010. Sydney: Australian Learning and Teaching Council

✗ Program minimum goals defined within <u>separate</u> framework of discipline learning progression?

✗ Domains and levels clearly & logically differentiated among themselves?

✔ ✗ Clear, logical differentiation relative to other disciplines?

✔ ✗ Iterative refinement in context of disciplinary *and* cross-disciplinary practice

✗ Information system support for rapid, iterative prototyping & refining

Acknowledgements and contact

- The CUSP curriculum information management system was jointly developed by Faculties of Engineering and IT, Architecture, Design and Planning and Health Sciences at the University of Sydney, with funding from DVC Education under the University's Teaching Improvement & Equipment Scheme.

- Available to other institutions free of charge under University Licence

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