



THE UNIVERSITY OF  
NEW SOUTH WALES

SCHOOL OF MINING ENGINEERING



*Presentation to:*  
*Society of Mining Professors*

*Re:*  
*Status of Minerals Tertiary  
Education in Australia*

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# Overview

## Review:

- Realities facing minerals education in Australia
- Strategic review outcomes
- Plans in hand

# *Back from the Brink - 1998*

## **Concerns**

- ❖ Lack of talented staff, hopelessly uncompetitive remuneration*
- ❖ Small student populations, high relative costs = vulnerable to closure*
- ❖ Under-resourced, therefore incapable of delivering teaching excellence*
- ❖ Graduates have poor understanding of industry*
- ❖ Too fragmented*
- ❖ Poor, ad hoc industry commitment*

# *Back from the Brink - 1998*

## **Concerns**

*Current minerals education system:*

- ❖ *It is not well positioned to take advantage of change and, therefore,*
- ❖ *Could be irretrievably damaged by coming change*

# *Back from the Brink - 1998*

## **Desired of the University System**

- ❖ *Collaboration*
- ❖ *Vision*
- ❖ *Innovation*
- ❖ *Quality*
- ❖ *Resources*
- ❖ *National / International Delivery*

# ACTION PLAN

- 1. Established MTEC, resourced with \$4 million**
- 2. Selected 3 mining, 3 metallurgy, 3 earth science schools (from 8 mining, 6 metallurgy, 32 geosciences)**
- 3. Focus on:**

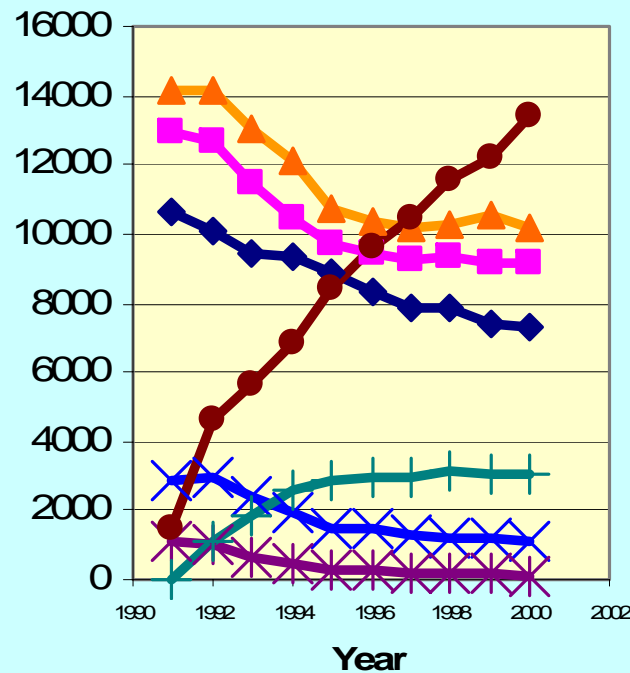
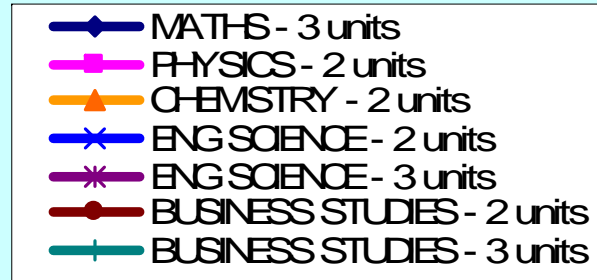
# MTEC Program Components

- ❖ Collaborative course development & distance, internet, based delivery
- ❖ MTEC Lecturers
- ❖ Industrial experience
- ❖ National Postgraduate Program
- ❖ Centres of excellence
  - Rock Mechanics
  - Ventilation (Run out of UK)

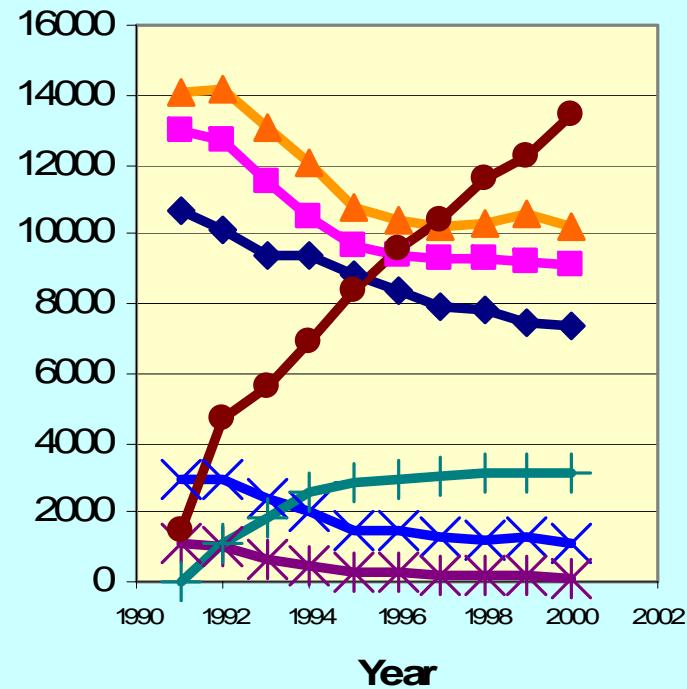
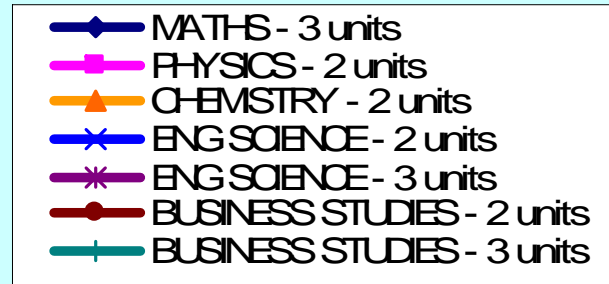
# REALITIES

## Post 1999

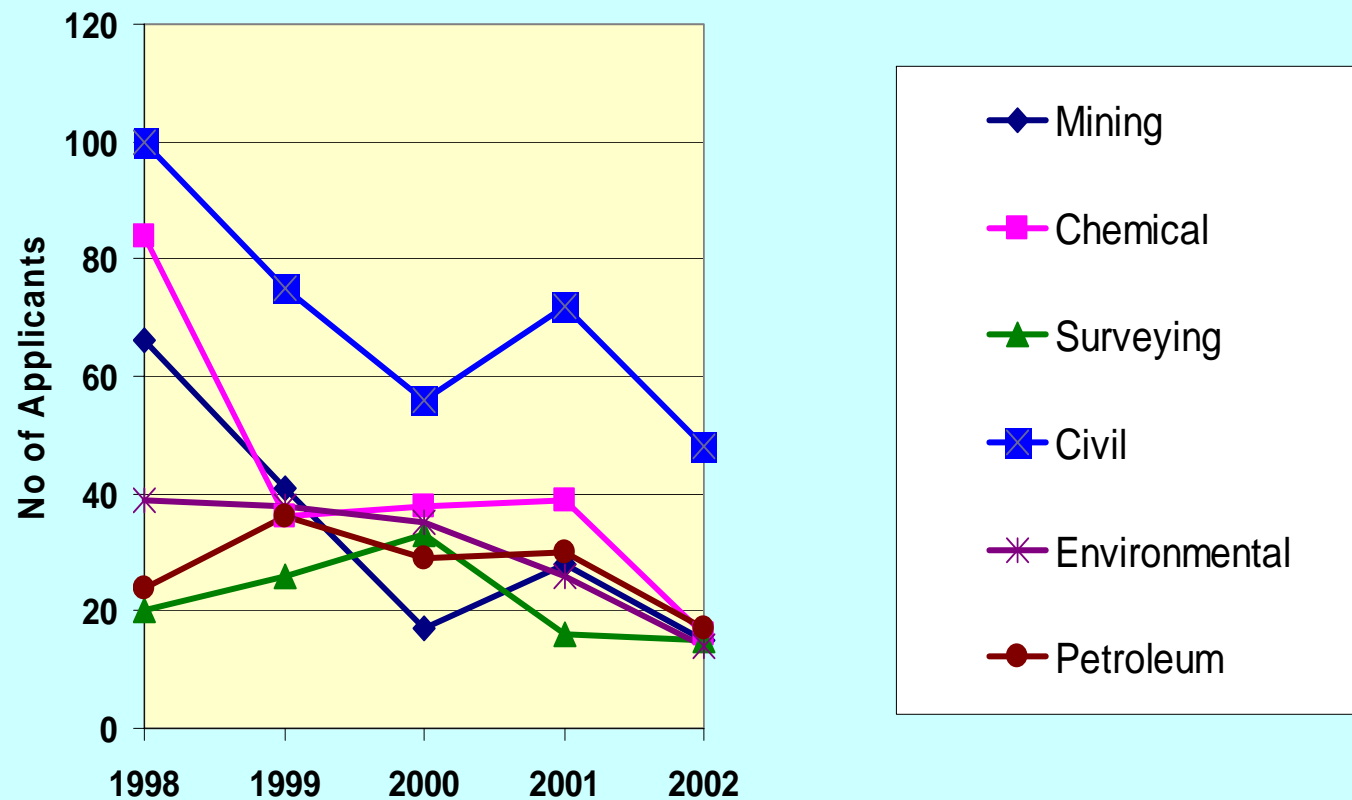
# Higher School Cert Subjects



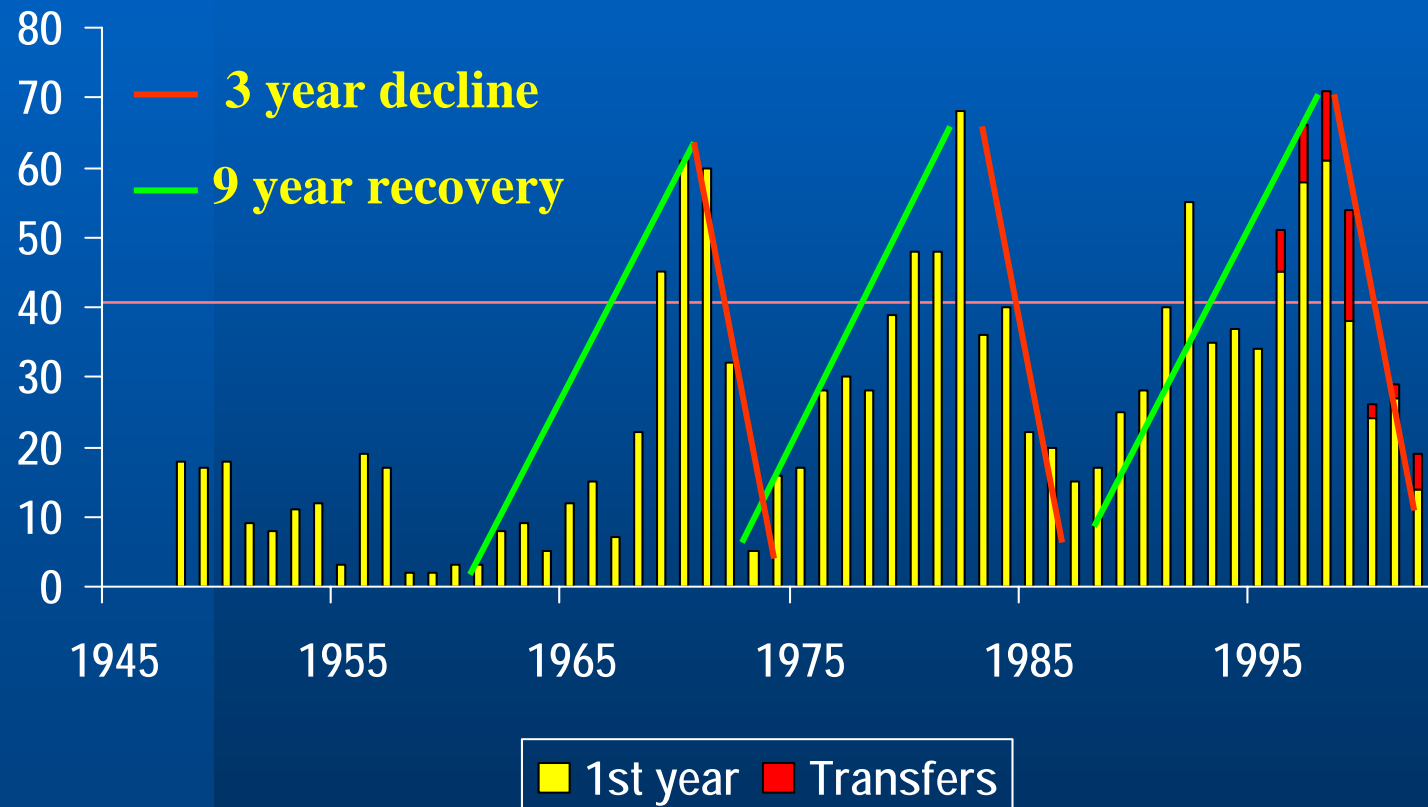
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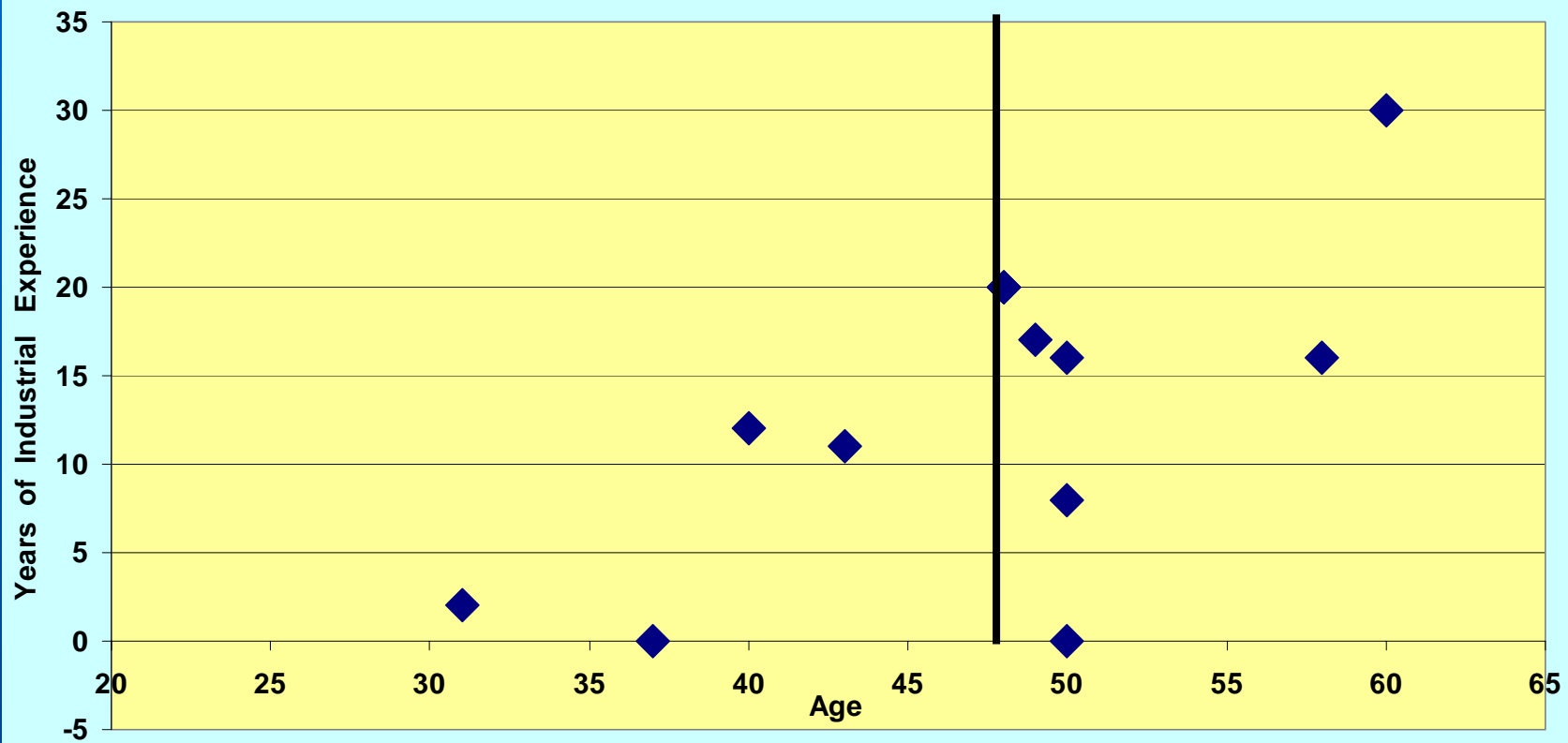
# HSC Applications to UNSW Engineering



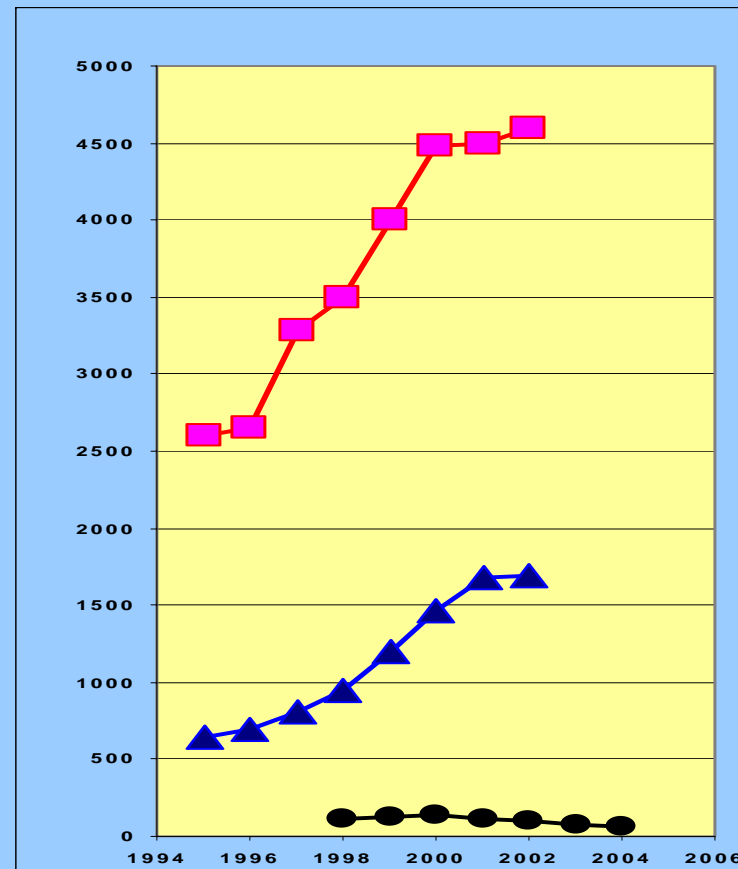
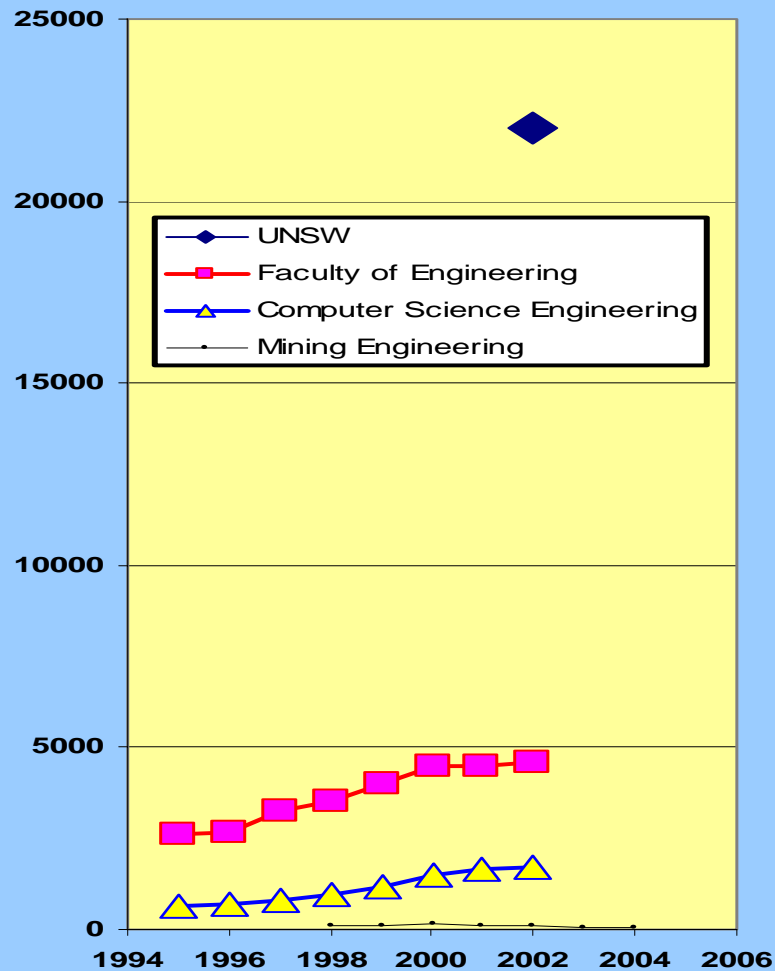
# New Enrollments in Mining Engineering



### Age and Experience Profile of Academic Mining Engineers



## UNSW Equivalent Full Time Students



**Mining Engineering is 'just noise' - 0.5% of enrollments**

**DETYA have capped UNSW enrollments. Therefore, decreased enrollments in old disciplines permanently lost to emerging disciplines.**

# Where do Graduates Go

- ❖ Operations – 50%
- ❖ Consultants – 15%
- ❖ Financial – 30%
- ❖ Lost Souls – 5%

# Consolidation

- ❖ Fewer companies
- ❖ Different faces
- ❖ Different places
- ❖ Loss of ‘Champions’

# **STRATEGIC REVIEW OF MINERALS COUNCIL OF AUSTRALIA TERTIARY EDUCATION INITIATIVES**

**2003 – Galvin & Carter**

# Status of Minerals Programs

## Continues to deteriorate in Australia

- ❖ 7 closed since 2000 - 4 MTEC partners
- ❖ 3 more marked for closure
- ❖ 2 under review
- ❖ 4 rationalised
- ❖ All but 2 submissions 'admit' to lack of viability (1 now under review)

## Continues to deteriorate in USA & UK

- ❖ 2/year close

# Why?

**Unforeseen external influences, which outweigh MTEC gains**

- ❖ Industry restructuring & consolidation
- ❖ Funding cuts to universities in real terms
- ❖ University restructuring and consolidation > favours high volume, low cost programs
- ❖ Decreasing maths/science student pool
- ❖ 'New economy' competition for this pool

# Other Issues Identified

## Minerals as Career of Choice

- ❖ Lifestyle does not fit aspirations of the young
- ❖ Up against adverse/biased media coverage
- ❖ Cyclic recruitment patterns damaging
- ❖ Some industry conditions a turn-off
- ❖ Change name – Finance, business

# MTEC's Impact

**Difficult to quantify MTEC gains  
because they have been outweighed by  
external influences.**

**Focus has shifted from Quality to  
Quantity in order to stay in  
business**

# Conclusions

- ❖ **Challenges are more serious than in envisaged in 1999**
- ❖ **There is a urgent need to address student recruitment**
- ❖ **The current MTEC initiatives and priorities need to be reviewed**

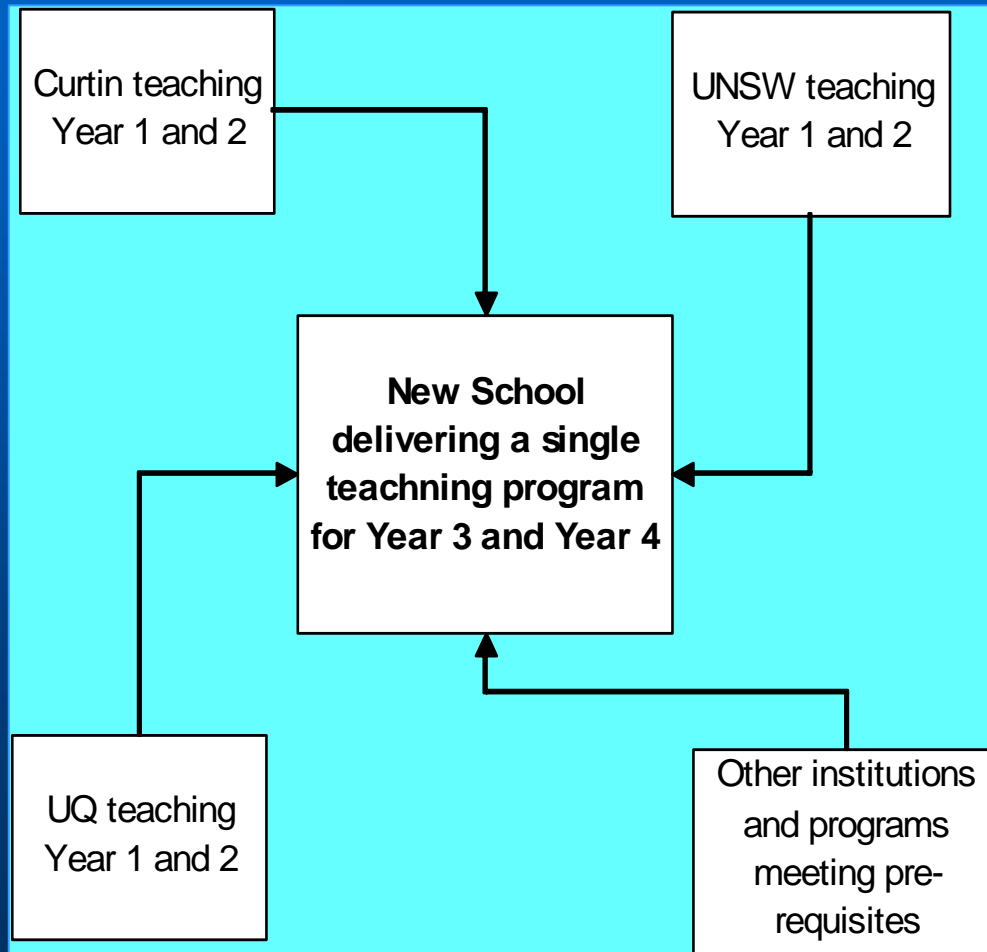
# Mine Environment

- Taught out of Plymouth, UK
- Face to face start
- Face to face 3 to 6 monthly
- Labs being connected to internet
- [..\..\..\..\Ventilation Modules\UNSW-UME-M1\\_VENT&MINESERV\\_Powerpoint.pdf](#)
- [..\..\..\..\Ventilation Modules\UNSW-UME-M3\\_HEAT\\_Powerpoint.pdf](#)

# National Mining School – the Vision

*“One Program and one School delivering a world class program of undergraduate education in mining engineering by integrating and coordinating the resources of Australia’s premier mining universities.”*

# Proposed National "School"



“School” would focus on teaching 3rd and 4th Year of the mining engineering program.

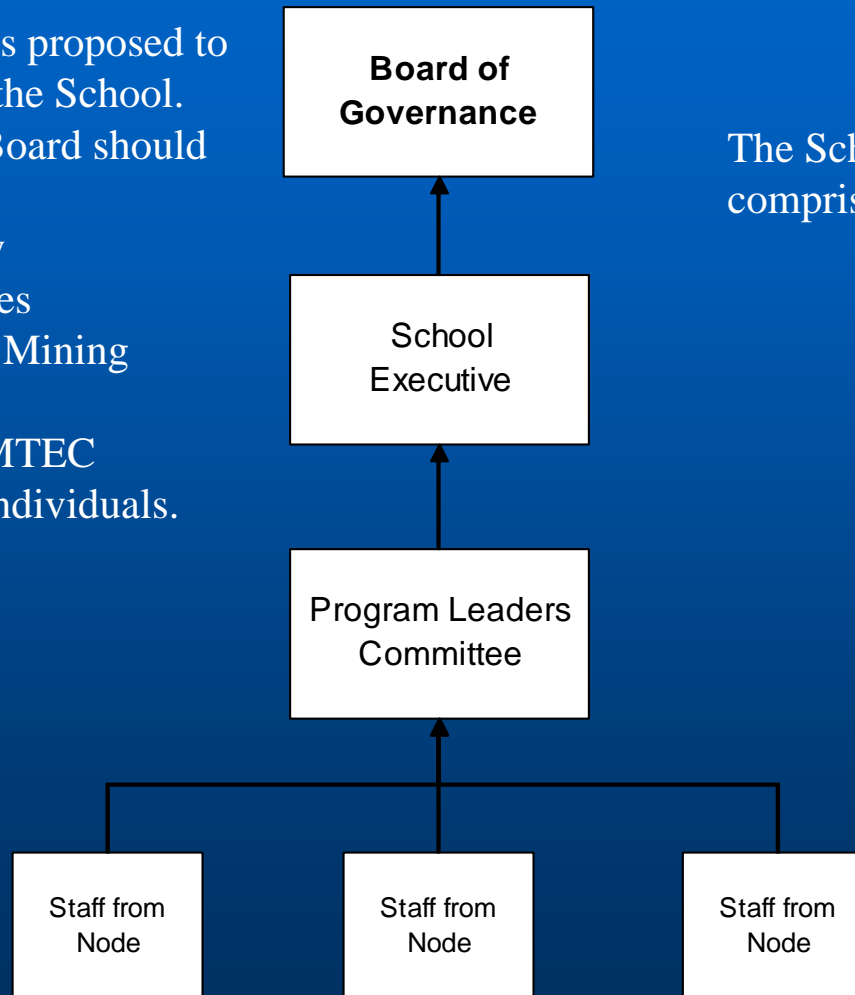
Partner institutions would continue to manage:

- student enrolment and fees,
- staff employment,
- 1<sup>st</sup> & 2<sup>nd</sup> year teaching, and
- awarding of degrees.

# Management Structure

A Board of Governance is proposed to oversee the operation of the School. The composition of the Board should be:

3 x University Representatives  
(3 x Heads of Mining Engineering)  
1 x Chair of MTEC  
3 x Industry individuals.



The School Executive should comprise:

3 x Heads of Mining Engineering  
1 x Executive Director of MTEC  
1 x Chair of Program Leaders Committee

# Critical Dates

- approval to develop Proposal – Mid June 2004
- approval to establish the School – Mid December 2004
- approval of Program and Courses – Second Half 2005
- Program and Course details in University Handbooks – March 2006
- transitional year – 2006
- full Implementation – 2007.

# MTEC

- ❖ A “work in progress”
- ❖ Outcomes dependent on achieving change in an entrenched culture
- ❖ MTEC is causing this change
- ❖ Too early for these changes to be converted into tangible outcomes and to become embedded