“The BEng Model: Experiences at Aston University”

A Presentation to an Engineering Gateways Workshop

11th September 2013
Presentation Objectives.

• To Explain:
  • The original pilot BEng Professional Engineering (Power Systems) programme.
  • Where the BEng Professional Engineering fits within the wider Aston context.
  • The new generic BEng Professional Engineering framework.
• A total of 23 slides.
A Convergence of Opportunities

MSc Professional Engineering (from Engineering Council Gateways Project)

BEng Professional Engineering

Aston Foundation Degrees Centre
BEng Professional Engineering (Power Systems)

- A two year programme
- 120 level credits at level 6
- Work Based Blended Learning
  - Distance learning material on Blackboard
  - Some work based projects
  - Some mentoring
- 6 modules
The Modules

- Professional Development Audit 10 credits
- Sustainable & Renewable Technologies 20 credits
- Elements of Power Systems 1 20 credits
- Elements of Power System II 20 credits
- Power Electronics & M/Cs for Power Systems 20 credits
- Work Based Project 30 credits
**PROGRAMME SET BENCH MARKS**

The reference points used to inform programme learning outcomes are set against the following:

|---------------------------------------------------------------|---------------------------------------------------------------------|-------------------------------------------------------------------------------------|
Coaching and Mentoring

Coaching

ARCADEMIC SUPERVISORS

PERSONAL TUTORS

PROFESSIONAL MENTORS
Role of Personal Tutor

- Each Student is allocated a Personal Tutor
- Take a personal interest in your progress and welfare
- To Advise
- support you in non-academic issues
- approached through a range of communication means that are appropriate to resolve welfare and non-academic issues.
Role of Academic Supervisor

- Each Student is allocated an Academic Supervisor

- overseeing the academic learning

- assist and facilitate learning by explaining theories of studied subjects

- Review and support in relation to assessment

approached through a range of communication means that are appropriate to resolve academic learning issues.
Role of Professional Mentors

- Overseeing the professional development to achieve IEng qualification
- To advise and to ensure that the student is on the right track
- Help to achieve the expertise required in the studied field
- Each Student is allocated a Professional Mentor

approached through arranged visits
1st Cohort (2010)

- 12 students started.
- All from Aston’s Foundation Degree Power Systems programme and sponsored by employers.
- 7 graduated in August 2012.
- 3 re-joined 2nd cohort.
- 2 dropped out (17%).
2nd Cohort (2011)

• 21 new students plus 3 from 1st cohort
• Most from Astons Foundation Degree but some from elsewhere
• 13 graduated in August 2013
• 4 re-joined 3rd cohort
• 2 extended their study programme from 2 to 3 years
• 5 dropped out (25%)
Work Based Blended Learning Success Criteria

Candidates who wish to take Work Based Blended learning programmes should have:

- **Motivation & time management**
  - Self motivation
  - Good time management

- **Discipline**
  - Self discipline
  - Capability to read for comprehension

- **Define of Goals**
  - Ability to set sights on an end result
  - Confident in being academically able
Work Based Blended Learning Success Criteria

Ability & Responsibility
- Ability to overcome obstacles and not to give up easily
- Responsibility of one’s own education – what one’s learning is ultimately his own responsibility

Desire
- Willingness to try something new
- Willingness to work in a non-structured environment

Express opinion & engagement
- Willingness to express opinion in writing
- Willingness to actively participate in the learning process by doing tasks, projects, etc.
We Also Learnt That:

- There is a specific demand for these types of programmes.
- That they are difficult to do properly.
- They don’t fit well within a normal university organisational structure using existing systems.
Aston Professional Engineering Centre

- An Independent Cross Departmental Group
- No single Head but led by a “Management Team”
- Object to be innovative in developing new outward looking partnerships both in UK and internationally
- Separate Programmes Directors for:
  - Foundation Degrees (Steve Luke)
  - Undergraduate Degree (Nagi Fahmi)
  - Postgraduate Degrees (Bill Glew)
- Plus a Centre Manager (Carol Winder)
ASTON TRIANGLE

Level 7

MSc Professional Engineering (Work Based Learning)

Level 6

BEng Professional Engineering (Work Based Blended Learning)

Level 5

Foundation Degree

Level 4

By Block Release

By Block Release

Foundation Degree

BEng Professional Engineering (Work Based Blended Learning)

MSc Professional Engineering (Work Based Learning)
BEng Professional Engineering (new in 2014)

• Has been approved for delivery in 2014
• A generic framework which will allow for discipline specific electives
• Based on our experience of running the BEng Professional Engineering (Power Systems)
• Two or three year duration
• Elective modules of either 10 or 20 credits
The New Module Structure

- Professional Development Audit
  - 10 credits
- Project Management
  - 20 credits
- Three or more elective modules totalling
  - 60 credits
- Work Based Project
  - 30 credits
Implementation Plan

- Due to start in January 2014 with a cohort of 9 students in Angola
- They have had a year of Aston designed “cpd bridging” studies activities to prepare them for this level of study
- First set of 11 elective modules to cover the oil and gas engineering disciplines designed in conjunction with company client (next slide)
- Further elective modules will be prepared to cover other disciplines
Current Set of BEng Elective Modules

- Offshore Engineering for Oil and Gas
- Microcontrollers: Architecture & Programming
- Power Systems 1
- Health, Safety & Environment
- Electrical Machines Construction & Performance
- Engineering Materials 1
- Solid Mechanics
- Process & Pollution Control
- Process Control & Instrumentation
- Electronic Group Design Project
- Quality Engineering
Delivery

- Three monthly visits by Aston staff to Angola.
- Each visit generally 3 to 4 days long.
- 8 visits over 2 year programme (approx. 250 contact hours).
- In between visits there will be monthly communication using email, Skype etc., and support by company workplace tutors.
- Expected independent study time approximately one day per week.
- Exams held in Angola with presentations to groups of Aston staff and company engineers.
Future Developments

- New pathways for electronics, aeronautical, and civil and construction engineering.
- Make available to existing users of MSc Professional Engineering, as either a feeder to that programme or as a stand alone programme for developing Incorporated Engineers.
  - Immediate opportunities in Malaysia, Indonesia and Azerbaijan.
- A top-up degree route for overseas partner universities, or other providers of UK Foundation Degrees and HND’s (with bridging studies as required).
  - Immediate opportunities in Hong Kong and UK.
- A possible alternative final year for students on ordinary taught BEng programmes.