

Appendix:

Example of a Learning Contract for Engineering (Learndirect):

Learning Contract for Mr John Blundell

Contract

identifier: jblundell001

Learner: Mr John Blundell (jblundell)

Printed: 13/11/2006 14:06

Status: Awaiting signatures

Personal Details

Your name, contact details and date of birth

MrJohn Blundell

Home address (preferred)

Home telephone number

Home email address

Work address:

Alstom Power
Performance Projects
Derby
Derbyshire
DE24 9GH

Work phone number

Work fax number

Work email address

Preferred contact time: evening

Qualifications & Credits identify the award or qualification that will be the focus of your contract

University: University of Derby

Qualification/Award: Masters Degree

Levels & Credits: Level 4/HE 1: 0 credits

Level 5/HE 2: 0 credits

Level 6/HE 3: 0 credits

Level 7/HE 4: 180 credits

Level 8/HE 4m: 0 credits

Programme Focus: Combustion, Fuels and Performance Modelling

Purpose

establish the overall purpose of your learning plan

Statement of
purpose:

Increase my knowledge of boiler and combustion performance and build on my previous understanding and abilities. This will include a deeper understanding of combustion, burner and furnace design concepts.

To understand and critically evaluate the use of mathematical models for coal combustion, to predict NOx and UBC. Increase my opportunity to become a consultative Engineer within the Alstom organisation.

Another benefit to the company would be to maintain / increase our present strong technical ability within the Alstom Power group and it enables the company to project a competent technical profile to prospective new clients.

Aims

set out your key learning aims

- Develop my mathematical modeling skills and abilities.
- Improve and increase my computer programming skills and knowledge.
- Increase my knowledge of coal and its influence on boiler and plant performance.
- To utilise mathematical models and computer codes to critically analyse coal combustion.
- To gain recognition of the PG level of some of my existing work-based learning
- To critically analyse and undertake a detailed investigation into the impact of Overfire Air systems on performance.
- To devise a planned activity route to enable my current learning objectives to be achieved.
- To determine NOx and Unburnt Carbon performance with combustion systems.

Programme Components

set out the components that will make up your programme

title	level	credits	start	finish	status
Boiler design practice	Level 7/HE Level 4	60	15/01/03	29/07/03	completed
Mathematics	Level 6/HE Level 3	15	01/01/04	31/07/04	completed
Computing	Level 7/HE Level 4	15	01/09/03	01/06/04	completed
Design aspects	Level 7/HE Level 4	15	01/07/03	31/12/04	completed
Independent Study Project	Level 7/HE Level 4	60	01/08/04	31/10/05	completed
Programme Learning Contract	Level 7/HE Level 4	15	01/01/03	31/05/05	completed

Boiler design practice

component type	level	credits	start	finish	status
a claim for accreditation of prior learning	Level 7/HE Level 4	60	15/01/03	29/07/03	completed

Objective: This is a claim based on my previous learning and professional competence as a boiler design engineer, to demonstrate that I have already undertaken significant work at Master's level.

Related Aims: To gain recognition of the PG level of some of my existing work-based learning

Activities: My claim covers the activities which have given me a wide range of understanding and experience in boiler design concepts, which I consider demonstrate that much of my work is at Master's level. My evidence draws on specific activities contributing to my professional duties.

Milestones: none

Learning Outcomes: 1: Ability to evaluate and deal with complex design problems.
 2: Ability to investigate design aspects which are outside of my normal design activities.
 3: Ability to manage my learning and development at a professional level.
 4: Ability to apply design concepts and theoretical data to solve problems, including situations where there have been conflicts of opinion.
 5: Understanding and application of design and computer concepts learnt from courses or self-taught learning to solve design problems.

Evidence: Technical presentation – with support material outlining details of the background to the presentation to demonstrate working at Master’s level.
 Computer spreadsheet program to demonstrate use of visual basic macros learnt from introduction to visual basic course
 Expert witness reports confirming work

Level Indicators: 1: Full responsibility for methods, actions and immediate and wider impacts which extend beyond the immediate area of practice
 2: Understanding and acting on interrelationships between wider systems in which the area of practice is located
 3: Undertaking substantial investigation to address significant areas of practice, using methodologies which are consistent with their purposes and contexts
 4: Developing novel approaches to systems

Mathematics

component type	level	credits	start	finish	status
a pre-designed course or module	Level 6/HE Level 3	15	01/01/04	31/07/04	completed

Objective: To develop and improve my mathematical modelling skills by studying and solving partial differentiation equation problems. In addition, to investigate the use of differential equations in mathematical modelling.

Related Aims: Develop my mathematical modeling skills and abilities.

Activities: Complete the mathematical distance learning module.

Milestones: none

Learning Outcomes: 1: Demonstrate my understanding of the use of differential equations in mathematical modelling and be able to obtain and evaluate solutions to problems modelled by differential equations.
 2: Ability to select and apply suitable methods to obtain the analytical or numerical solution to problems modelled by partial differential equations.

Evidence: Coursework - 50% weighting -This will assess my ability to formulate and solve models which are described by differential equations.
 Examination - 50 % weighting - A three hour unseen closed book examination.

Level Indicators: 1: Understanding the implications of different issues and courses of action
 2: Developing and evaluating a range of practical theories, ideas and models, including to find ways forward in problematic situations
 3: Evaluating the actual and potential effects of theories and actions, including impacts outside of the immediate context

Computing

component type a pre-designed course or module	level Level 7/HE Level 4	credits 15	start 01/09/03	finish 01/06/04	status completed
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Objective: To improve my computing ability. To support my activity and responsibility for the technical computer programs within the engineering department of the company. To learn a new computer language (Java).

Related Aims: Improve and increase my computer programming skills and knowledge.

Activities: Complete a distance learning computer course.

Milestones: none

Learning Outcomes: 1: Understand and use fundamental programming concepts and constructs
2: Design, develop and test programs using a programming tool

Evidence: Coursework - 80% weighting
Examination - 20 % weighting

Level Indicators: 1: Developing thought-through courses of action which take into account issues beyond the immediate area of practice
2: Using mastery of knowledge relating to, and extending into the wider context of, the area of practice.

Design aspects

component type something you have created yourself	level Level 7/HE Level 4	credits 15	start 01/07/03	finish 31/12/04	status completed
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Objective: To critically evaluate and investigate Overfire Air systems. To utilise information and knowledge gained from Leeds University MSc module.

Related Aims: To critically analyse and undertake a detailed investigation into the impact of Overfire Air systems on performance.

Activities: Investigate and study Overfire Air system design concepts.
To develop computer models to analyse the interrelationship between different Overfire Air designs for coal firing in a typical furnace configuration, including utilisation of a CFD computer package (CINAR) to critically analyse complex problems and situations .
Follow the programme of study of Leeds University MSc module in "Combustion in Boilers and Furnaces" and to apply the basic jet theory to the area of study.

Milestones: none

Learning Outcomes: 1: To critically evaluate the effect of Overfire Air systems on furnace performance.
2: To evaluate the feasibility of applying mathematical modelling to different overfire air scenarios.
3: Critically analyse the relevance of jet theory to overfire air systems.

Evidence: Produce a report detailing my findings, which utilises data and results from the mathematical modelling (equivalent to 2500 to 3000 words).
Certificate of attendance on Leeds University MSc Module course including a list of the course content.

Level Indicators:

- 1: Understanding alternative implications of different issues and courses of action
- 2: Understanding and managing dilemmas and value-conflicts
- 3: Developing innovative ways forward in complex and unpredictable situations

Independent Study Project

component type	level	credits	start	finish	status
something you have created yourself	Level 7/HE Level 4	60	01/08/04	31/10/05	completed

Objective: To utilise the information and knowledge gained from the previous programme components, in particular the mathematics and computing components. This will enable assessments to be made relating to the impact of coal combustion on performance.

Related Aims:

- Increase my knowledge of coal and its influence on boiler and plant performance.
- To utilise mathematical models and computer codes to critically analyse coal combustion.
- To determine NOx and Unburnt Carbon performance with combustion systems.

Activities:

- Undertake a literature search pertinent to the study.
- Identify and collect relevant test data.
- Undertake a review and use a simple mathematical model to predict coal combustion.
- Utilise mathematical computer code models to predict coal combustion.
- Comparison of results from test data and mathematical models which where appropriate will involve investigation of models and codes.
- To utilise and unify knowledge and abilities gained from previous programme components.

Milestones: none

Learning Outcomes:

- 1: Investigate an issue or problem relevant to the area of study.
- 2: Review literature pertinent to the study.
- 3: Consider and apply appropriate methodology consistent with the area of study.
- 4: Record and discuss data and information generated in the investigation.
- 5: Draw conclusions to highlight the outcomes of the investigation consistent with the area of study.

Evidence: Dissertation equivalent to between 10000 and 12000 words.
Certificate of attendance on Leeds University MSc module course including a list of the course content

Level Indicators:

- 1: Working effectively in problematic contexts which contain value-conflicts and uncertainties which extend beyond the immediate area of practice
- 2: Developing and critically evaluating a range of practical theories, ideas and models, including to overcome dilemmas and find ways forward in problematic situations
- 3: Researching, analysing and evaluating information to identify inter-relationships between wider systems in which the area of practice is located
- 4: Critically evaluating thinking, action and structural factors operating in the area of practice, including underlying assumptions, and identifying implications for wider systems beyond the area of practice

Programme Learning Contract

component type	level	credits	start	finish	status
something you have created yourself	Level 7/HE Level 4	15	01/01/03	31/05/05	completed

Objective: To describe, rationalise and contextualise previous learning achievements. To identify next learning objectives and devise a route to enable these objectives to be achieved.

Related Aims: To devise a planned activity route to enable my current learning objectives to be achieved.

Activities: Systematically follow an appropriate structural programme consisting of suitable prescribed course modules and self defined activities at Masters Degree level.

Milestones: none

Learning Outcomes: 1: Provide an appropriate response to all sections of the full learning contract.
2: Analyse and comment on personal development and relevant prior experience to date.
3: Articulate a rationale for my proposed programme, locating it within the context of current thinking within the relevant field of study.

Evidence: Printed Learning Contract equivalent to 2500 words.

Level Indicators: 1: Developing thought-through courses of action which take into account issues beyond the immediate area of practice

Employment

your employment details

Occupation category: professional occupations

Employment status: employed, full time

Industry sector: Other: Design Office - Power Industry

Organisation type: private

type:

Organisation size: 500+

Experience

provide an account of your experience that is relevant to your contract

Review Of Experience

Although, I undertook an electrical technician apprenticeship and had a brief period teaching, I have spent the last 22 years working in the Power Industry. The company has changed name several times during this period and I have continued to progress from draughtsman to senior design engineer. During this time I completed an Open University degree in mathematics. In addition, I have been involved in various technology transfers, which included a period of 6 months working in Belgium. The majority of my ongoing learning has been through these transfers or self taught studies.

I have developed my knowledge in areas of boiler and furnace design, computer modeling, computer programming and fuel technology. The skills and knowledge learnt has enabled me to progress within the company organisation.

I often work on a wide range of project types and have to be flexible and able / willing to tackle these varying project groups. It is my responsibility to research areas / aspects where I lack knowledge. As an example recently I have been studying and gaining skills / knowledge in the CFD computer program CINAR, which was developed by Imperial College for analysing combustion performance in furnaces.

Where You Are Now

I consider that I am a confident and experienced design engineer able to respond to new challenges in the ever-changing Power Industry. Although, I have gained a large proportion of my experience and knowledge over my employment with the company I have no formal qualification for these increased skills. Therefore, I would like to develop this into a higher qualification

Relevant Qualifications

City and Guilds Full Technological Certificate in Electrical engineering 1975
BA in mathematics (Open University) 1986
Technology Transfer courses : [Heat recovery Steam Generators (including 6 months in Belgium)and Circulating Fluid Bed boilers (in Germany and USA)]
Short courses : [Incineration Technology
Computer software packages (SIMU / DYNA /Gatecycle / Visual Basic.
CINAR (CFD - Self taught - although I am due to go on a course next year).
Construction Design and Management regulations (CDM)
ITB passport training - Construction site work.]

Signatories

gain the agreement and signatures of those involved in your contract

signatory type

HEI Tutor
HEI Tutor
HEI Tutor
HEI Tutor
HEI Tutor
Learner

signatory

Ms Chris Newman (Newman)
Doctor David Young (Young)
Mr John Filimon (Filimon)
Mr Colin Davenport (Davenport)
Mr Kevin Edwards (kedwards)
Mr John Blundell (jblundell)