

Industrialisation, Manufacturing and Health Economics Course Descriptor

Course Title	Industrialisation, Manufacturing and Health Economics	Faculty	EDGE Innovation Unit (London)
Course code	NCHNAP5109	Course Leader	Professor Scott Wildman (interim)
Credit points	15	Teaching Period	This course will typically be delivered over a 6-week period.
FHEQ level	5	Date approved	Sep 2021
Compulsory/Optional	Compulsory	Date modified	
Pre-requisites	None		
Co-requisites	None		

Course Summary

The course develops a critical understanding of the evolution and impact of the industrialisation of biological processes. It considers the wider economic, ethical and societal contexts for manufacturing and the key areas where industrialisation is taking place. It explores the methodologies and technologies that are employed within scaled production and the impact that industrialisation and manufacturing have on health economics and markets.

Course Aims

- To introduce learners to key stages in the evolution of industrialisation and manufacture of biological processes, and the wider business, ethical, environmental, societal and regulatory contexts within which manufacturing takes place.

- Examine the challenges and opportunities afforded by the industrialisation and manufacture of biological processes and the impact these have on health economics.
- To provide a detailed examination of the principles, methodologies, technologies and tools employed to scale up biological process for industrialisation and manufacture.

Learning Outcomes

On successful completion of the course, learners will be able to:

Knowledge and Understanding

- K1b Demonstrate knowledge and critical understanding of the underlying principles, concepts and drivers of health economics.
- K2b Critically understand and have knowledge of industrial scale bioprocessing, biotechnology and manufacturing.
- K4b Critically understand and have knowledge of the main areas in which industrialisation and manufacture of biological processes operate, the management challenges, opportunities of scale, and the impact of the sector on health economics.

Subject Specific Skills

- S3b Analyse and interpret health economics data to identify trends and draw conclusions.
- S4b Critically evaluate the opportunities of industrialisation and manufacturing in the bioscience and health sectors, such as the wider cultural, ethical, social and business contexts.

Transferable and Professional Skills

- T1b Take responsibility for independent study and time management.
- T2b Research information from a range of sources.
- T3b Demonstrate an effective technical proficiency of written English that uses a wide range of literacy skills and vocabulary selected appropriately to communicate to specialist and non-specialist audiences.

Teaching and Learning

This is an e-learning course, taught throughout the year.

This course can be offered as a standalone short course.

Teaching and learning strategies for this course will include:

- Online learning
- Online discussion groups
- Online assessment

Course information and supplementary materials will be available on the University's Virtual Learning Environment (VLE).

Learners are required to attend and participate in all the formal and timetabled sessions for this course. Learners are also expected to manage their self-directed learning and independent study in support of the course.

The course learning and teaching hours will be structured as follows:

- Off-the-job learning and teaching (6 days x 7 hours) = 42 hours
- One-the-job learning (12 days x 7 hours) = 84 hours (e.g. 2 days per week for 6 weeks)
- Private study (4 hours per week) = 24 hours

Total = 150 hours

Workplace assignments (see below) will be completed as part of on-the-job learning.

Assessment

Formative

Learners will be formatively assessed during the course by means of set assignments. These will not count towards the final degree but will provide learners with developmental feedback.

Summative

Assessment will be in two forms:

AE	Assessment Type	Weighting	Online submission	Duration	Length
1	Multiple Choice Exam	40%	Yes	1 hour	-
2	Set Exercises (problem-solving)	60%	Yes	Requiring on average 20 – 25 hours to complete	-

Feedback

Learners will receive formal feedback in a variety of ways: written (via email or VLE correspondence) and indirectly through online discussion groups. Learners will also attend a formal meeting with their Academic Mentor (and for apprentices, including their Line Manager). These bi or tri-partite reviews will monitor and evaluate the learner's progress.

Feedback is provided on summatively assessed assignments and through generic internal examiners' reports, both of which are posted on the VLE.

Indicative Reading

Note: Comprehensive and current reading lists for courses are produced annually in the Course Syllabus or other documentation provided to learners; the indicative reading list provided below is used as part of the approval/modification process only.

Books

- Jones, A. M. (2013). *Applied health economics* (2nd ed.). London ; New York : Routledge.
- Mader, S. S. (2004). *Biology* (8th ed.). Boston: McGraw-Hill.
- Smart, N. (2013). *Lean Biomanufacturing* (1st edition). Woodhead Publishing

Journals

Learners are encouraged to read material from relevant journals on industrialisation, manufacturing and health economics as directed by their course leader.

Electronic Resources

Learners are encouraged to consult relevant websites on industrialisation, manufacturing and health economics.

Indicative Topics

- Biological processes, industrialisation and manufacture
- Health economics
- Principles and key concepts in scaled biological processes

Version History

Title: NCHNAP5109 Industrialisation, Manufacturing and Health Economics Course Descriptor Approved by: Academic Board Location: Academic Handbook/Programme specifications and Handbooks/ Undergraduate Apprenticeship Programmes/BSc (Hons) Bioscience with Digital Technologies Programme Specification/Course Descriptors					
Version number	Date approved	Date published	Owner	Proposed next review date	Modification (As per AQF4) & category number
3.0	October 2022	January 2023	Scott Wildman	September 2026	Category 1: Corrections/clarifications to documents which do not change approved content or learning outcomes Category 3: Changes to Learning Outcomes
2.0	January 2022	April 2022	Scott Wildman	September 2026	Category 3: Changes to Learning Outcomes
1.0	September 2021	September 2021	Scott Wildman	September 2026	