1. **Title of the module**

 LABS504 Applied Microbiology (Science Option)

1. **School or partner institution which will be responsible for management of the module**

Centre for Higher and Degree Apprenticeships (CHDA)

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 5

1. **The number of credits and the ECTS value which the module represents**

15 Credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

This module is part of the FdSc and BSc (Hons) in Applied Bioscience being delivered through a part-time distance learning approach.

1. **Prerequisite and co-requisite modules**

 Microbiology

1. **The programmes of study to which the module contributes**

FdSc and BSc (Hons) in Applied Bioscience

1. **The intended subject specific learning outcomes.
On successfully completing the module students will be able to:**
2. Demonstrate a working knowledge of aseptic technique, containment of pathogens and use of sterile areas in industrial processes.
3. Demonstrate an ability to evaluate the methods available for control of microbial contamination.
4. Demonstrate both a practical understanding and working knowledge of GLP and GMP.
5. Demonstrate the ability to describe a range of industrial applications of microbiology.
6. Demonstrate an in-depth knowledge of ONE specified case within industrial microbiology.
7. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**
8. Demonstrate an ability to obtain and use information from a variety of sources to develop research skills.
9. Demonstrate an ability to develop problem solving skills.
10. Demonstrate an ability to synthesise and present data.
11. Show time-management and active learning skills together with the use of a reflective personal development plan within the context of self-directed learning.
12. Demonstrate an ability to broaden knowledge beyond one’s own immediate experience within a field.
13. **A synopsis of the curriculum**

Safe laboratory practice: legislation relating to Health & Safety and the handling of dangerous pathogens.

Techniques available for the measuring of microbial growth.

The control of microbial growth: disinfection, sterilisation and the basics of antibiotic use.

Microbial metabolism.

Microbiology and the environment: waste & sewage.

Microbiology and medicine: infectious diseases.

Microbiology and industrial production: pharmaceuticals & health, modern biotechnology, foods & beverages.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ISBN number** | **Author** | **Date** | **Title** | **Publisher** |
| 144330632 | Hugo & Russell | 2011 | Pharmaceutical Microbiology, 8th edition | Wiley-Blackwell |
| 9780323044752 | Goering, V. *et al* | 2009 | Mim’s Medical Microbiology4th edition | Mosby - Elsevier |
| 9780123735812 | Renneberg, R. *et al* | 2008 | Biotechnology for beginners | Academic Press |
| 0521540771 | Smith, J. E. | 2004 | Biotechnology, 4th edition (Studies in biology series) | Cambridge University Press |
| 0113204647 | DoH&SS | 1979 | Code of practice for the prevention of infection in clinical laboratories and post-mortem rooms | HMSO |
| 0113208324 | DoH&SS | 1983 | Guide to good pharmaceutical manufacturing practice | HMSO |
| 0748406158 | Denyer & Baird | 2007 | Guide to microbiological control in pharmaceuticals and medical devices | CRC Press |

1. **Learning and teaching methods**

Total Contact Hours: 120

Private Study Hours: 30

Total Study Hours: 150

1. **Assessment methods**
	1. Main assessment methods

Portfolio/Case Study 30%

Assignments 20% - 2 Assignments

MCQ – 20%

Written Exam – 30% - 2 hours

13.2 Reassessment methods

Like for Like

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 9.1 | 9.2 | 9.3 | 9.4 | 9.5 |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |
| **Teaching** | **x** | **x** | **x** | **x** |  |  | **x** | **x** |  |  |
| Private Study | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Work-based experience |  |  |  |  |  | **x** | **x** | **x** | **x** | **x** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| Portfolio | **x** |  | **x** |  |  | **x** | **x** | **x** | **x** | **x** |
| Assignments | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| MCQ | **x** | **x** | **x** | **x** | **x** |  |  |  |  |  |
| Examination | **x** | **x** | **x** | **x** | **x** |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |

1. ***Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)***

1. **Inclusive module design**

The School/Collaborative Partner *(delete as applicable)* recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Distance, Medway

1. **Internationalisation**

Applied Microbiology is a core component of the Pharmaceutic R & D industry and reflects international aspects.

**FACULTIES SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
|  |  |  |  |  |
|  |  |  |  |  |