**SECTION 1: MODULE SPECIFICATIONS**

1. Title of the module

**MICR1008 Applied Microbiology (Science Option)**

1. School which will be responsible for management of the module

**Medway School of Pharmacy**

1. Start date of the module

**2014**

1. The cohort of students (onwards) to which the module will be applicable

**2012**

1. The number of students expected to take the module

**10-30 per cohort**

1. Modules to be withdrawn on the introduction of this proposed module and consultation with other relevant Schools and Faculties regarding the withdrawal

**N/A**

1. Level of the module *(e.g. Certificate [C], Intermediate [I], Honours [H] or Postgraduate [M])*

**I**

1. The number of credits which the module represents

**15 credits**

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

**The module is part of the Foundation Degree in Applied Bioscience Technology which is being delivered primarily through e-learning on a part-time basis over three years.**

1. Prerequisite and co-requisite modules

**Microbiology**

1. The programme(s) of study to which the module contributes

**Foundation Degree in Applied Bioscience Technology**

1. The intended subject specific learning outcomes and, as appropriate, their relationship to programme learning outcomes

* Demonstrate a working knowledge of aseptic technique, containment of pathogens and use of sterile areas in industrial processes (**POs: A3, B13, B16, B19, C24**)
* An ability to evaluate the methods available for control of microbial contamination (**POs: A1, A2, A3, A7, A9, A10, A12, B13, B14, B16, C20, C22, C24**)
* Demonstrate both a practical understanding and working knowledge of GLP and GMP (**POs: A5, A7, A9, A10, B13, B16, B18, C20, C22, C24**)
* The ability to describe a range of industrial applications of microbiology (**POs: A3, A5, A6, A9, A10, B16, B17, C24**)
* Demonstrate an in-depth knowledge of ONE specified case within industrial microbiology (**POs: A4-A10, A12, B14. B19, C21, C24**)

1. The intended generic learning outcomes and, as appropriate, their relationship to programme learning outcomes

* An ability to obtain and use information from a variety of sources to develop research skills (**POs: D25, D26, CD33**)
* An ability to develop problem solving skills (**POs: B16, B19, D,28, D29**)
* An ability to synthesise and present data (**POs: A12, B14, D27**)
* Show time-management and active learning skills together with the use of a reflective personal development plan within the context of self-directed learning (**POs: D31-D33)**
* An ability to broaden knowledge beyond one’s own immediate experience within a field (**POs: D33)**

1. 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. Indicative Reading List

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **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 Microbiology  4th 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, including the nature and number of contact hours and the total study hours which will be expected of students, and how these relate to achievement of the intended learning outcomes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Activity** | **e-learning** | **E-activities/ Practicals / Work activities** | **MSCL / CAL** | **Total hours** | **Learning Outcomes** |
| Teaching | 35 | 25 | 15 | **75** | A1, A2, A3, A4, A5, A6, A7, A9, A12, B13, B14, B16, B19, C20, C21, C22, C24, D25, D26, D27 |
| Private study | 15 | 5 | 10 | **30** | A6, A9, B14, B16, C22, C24, D25, D31, D32, D33 |
| Work-based experience |  | 40 |  | **40** | A4, A5, A10, B18, B19, C20, C22, D27, D33 |
| Formal assessment |  |  |  | **5** |  |
| **Total hours** |  |  |  | **150** |  |

**Online e-learning** is intended to present the key information directly relating to the learning objectives.

**E-activities, practicals and work activities** serve to reinforce material presented online and also relate directly to the learning objectives. These are specifically based on enabling students to relate their theoretical knowledge to the advanced level practice of microbiology in a variety of industries.

**MSCL** serves to reinforce and support materials presented in the above forms in the students’ minds. They also form part of the self-directed learning for the student.

**Private study** encompasses the revising of all material presented in the above various forms of teaching and learning, together with the opportunity to explore and read more widely around specific topics (this may already have been suggested in the MSCL materials).

1. Assessment details: Assessment methods and how these relate to testing achievement of the intended learning outcomes.

|  |  |  |  |
| --- | --- | --- | --- |
| **Method of assessment** | **Learning outcomes assessed (POs & SSLOs)** | **Weighting** | **Outline details** |
| Continuous assessment (1) | A1, A2, A3, A4, A5, A6, A7, A9, A12, B13, B14, B16, B19, C20, C21, C22, C24, D25, D26, D27, D31, D32, D33 | 30% | Reflective report / case study / lab. report \* |
| Continuous assessment (2) | A4, A5, A10, B13-16, B18, B19, C20, C22, D27, D33 | 20% | Based on assessment of myFolio entries. |
| Continuous assessment (3) | All subject specific learning outcomes (SSLOs) | 20% | 40 minute MCQ assessment |
| Examination | All subject specific learning outcomes (SSLOs) | 30% | 1 hour written examination |

[\* as relevant to the module section being assessed]

**The pass mark for this module is 40%. The aim of the assessment is that there should be an equal balance between ‘application’ (i.e. reflection related to practical/work experience) and ‘theory’ (i.e. examination), but that neither should enable the student to obtain a pass grade independently and in its entirety.**

1. Implications for learning resources, including staff, library, IT and space

**The programme will be delivered using Moodle as a Virtual Learning Environment (VLE) and myFolio will be used to hold all Reflective Portfolio entries and Personal Development Plans.**

1. **The School recognises and has embedded the expectations of current disability equality legislation, and supports students with a declared disability or special educational need in its teaching. Within this module we will make reasonable adjustments wherever necessary, including additional or substitute materials, teaching modes or assessment methods for students who have declared and discussed their learning support needs. Arrangements for students with declared disabilities will be made on an individual basis, in consultation with the University’s disability/dyslexia support service, and specialist support will be provided where needed.**

***If the module is part of a programme in a Partner College or Validated Institution, please complete the following:***

1. Partner College/Validated Institution: **N/A**
2. University School (for cognate programmes) or Faculty (for non-cognate programmes) responsible for the programme:

**SECTION 2: MODULE IS PART OF A PROGRAMME OF STUDY IN A UNIVERSITY SCHOOL**

**Statement by the School Director of Learning and Teaching/School Director of Graduate Studies (as appropriate):** "I confirm I have been consulted on the above module proposal and have given advice on the correct procedures and required content of module proposals"

|  |  |
| --- | --- |
| BOApampa  Director of Learning and Teaching  Dr Buge Apampa  Print Name | Date |

**Statement by the Head of School:** "I confirm that the School has approved the introduction of the module and, where the module is proposed by School staff, will be responsible for its resourcing"

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| --- | --- |
| Head of School  Professor Iain Cumming  Print Name | Date October 2011 |