1. **Title of the module**
   IT Tools for Chemists – GSKCHEM6

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

3. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**
   HE Level 4 / NQF Level 7

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

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

6. **Prerequisite and co-requisite modules**
   None

7. **The programmes of study to which the module contributes**
   This is a compulsory module for the Postgraduate Certificate in Professional Development.

8. **The intended subject specific learning outcomes.**
   **On successfully completing the module students will be able to:**
   8.1 Use IT tools to access internal and external sources of chemical data and information and their content, including the availability and hazards of chemicals, and method of synthesis.
   8.2 Use IT tools to generate a set of related chemical structures, and understand structure searching methods.
   8.3 Apply a range of IT tools and techniques for retrieving chemical and biological data for a compound set.
   8.4 To select the appropriate tools for accessing these chemical and biological data-sources.
   8.5 Demonstrate the ability to visualise, use and report data associated with a compound set.

9. **The intended generic learning outcomes.**
   **On successfully completing the module students will be able to:**
   9.1 Demonstrate an awareness of internal and external sources of chemical data/information and their content (A3, A4, A5, A7, B1b, B1c, B1d, B1e)
   9.2 Identify and select the appropriate tools for accessing these data-sources (A3, A4, A5, A7, B1b, B1c, B1d, B1d, Cs, Ct))
   9.3 Demonstrate the ability to access and retrieve basic chemical information on single compounds e.g. availability and hazard information (A3, A4, A5, A7, B1b, B1c, B1d, B1e)
   9.4 Demonstrate the ability to access and retrieve reaction information relating to a single compound e.g. method of synthesis (A3, A4, A5, A7, B1b, B1d)
   9.5 Demonstrate an understanding of structure searching methods – isomeric, substructure searching, similarity etc. (A3, A4, A5, A7, B1b, B1d, B1e, B1g, B1h)
   9.6 Identify and select the most appropriate tools for generating a set of related chemical structures (A3, A4, A5, A7, B1c, B1d, B1e, B1f, B1g, B1h, Cn, Co, Cs, Ct)
   9.7 Apply a range of IT tools and techniques for retrieving chemical and biological data for a compound set (A3, A4, A5, A7, B1b, B1c, B1d, B1e, Cn, Co, Cq, Cs)
   9.8 Demonstrate the ability to visualise, use and report data associated with a compound set (A3, A4, A7, B1f, B1g, B1h, Cm, Cq, Cs, Ct)

10. **A synopsis of the curriculum**
   This module provides a framework of learning and training in computational packages for new staff entering the company, primarily Chemistry graduates. The aims of the IT Module are to learn and
develop informatics techniques and methods for accessing, retrieving and using scientific data, primarily chemistry-related. The module also provides tools which allow chemists to exert a greater strategic influence on current research programmes.

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

Training manuals or reference guides are available for each software package

12. Learning and teaching methods

For the IT tools studied, the student will be expected to attend the appropriate training sessions available, these include online learning and face-to-face training sessions. In addition, the students will be trained by their supervisor and “lead users” for each specific IT tool. The remaining hours are amassed through “on the job” training and practice within the laboratory setting.

Learning hours: 50

13. Assessment methods

Within an agreed timeframe (e.g. 3-12 months), participants should be able to utilise these computational packages with accuracy and dexterity, as judged by their supervisor and supervisor’s line manager, with input from other colleagues as required. Participants will provide a portfolio of work generated using the specific computational packages. This portfolio – in some combination of printed and electronic formats - will exhibit the skill level of the participant in the use and application of the package(s).

The participant’s supervisor will provide written justification regarding their assessment. The supervisor’s line manager will review, discuss with the supervisor, and ultimately ratify the recommendations of the participant’s supervisor.

The external examiner will have access to:

- Examples where the knowledge acquired has been applied in the workplace, including:
  - printed results of chemical searches, and biological data analysis and outputs demonstrating the skill level of the participant in the use and application of the computational packages to current research
  - re-formatted results for communication (report, email, presentation, laboratory notebook etc.)
- The supervisor’s and supervisor’s line manager’s assessment summaries

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

<table>
<thead>
<tr>
<th>Module learning outcome</th>
<th>8.1-8.5</th>
<th>9.1-9.8</th>
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<tbody>
<tr>
<td>Learning/teaching method</td>
<td>Hours allocated</td>
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<tr>
<td>Private Study</td>
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<td>X</td>
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<tr>
<td>Face-to-face training</td>
<td>10</td>
<td>X</td>
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15. Inclusive module design
GSK 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

16. Campus(es) or centre(s) where module will be delivered
GSK Stevenage

17. Internationalisation
The capability of IT tools, and their application to scientific research by multidisciplinary scientists across the globe, are rapidly advancing. Mastery of the subject-specific learning outcomes will equip students to apply the IT tools studied in this module in a wide range of international contexts. A proportion of the IT tools studied are widely available across the globe, and additionally the skills learnt in this module can be readily applied to the use of alternative IT tools in the wider scientific community. GSK is a large multi-national healthcare organisation which enables students to appreciate the international aspects and benefits of scientific research and development.

18. Partner College/Validated Institution
GSK Stevenage

19. University School responsible for the programme
Physical Sciences

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

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<tr>
<th>Date approved</th>
<th>Major/minor revision</th>
<th>Start date of the delivery of revised version</th>
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