Module Description
This is an integrated module, which combines aspects of API synthesis, and formulation along with product processing and analysis.

Learning Outcomes
On successful completion of this module the learner will/should be able to…

1. Demonstrate competence in the application of a range of organic chemical synthetic techniques to the production of some common active pharmaceutical ingredients.
2. Instrumental analysis, e.g. HPLC, GC, IC, GCMS, with qualitative and quantitative evaluation and interpretation of chromatographic separations.
3. Generate and interpret standard preformulation data on some active pharmaceutical ingredients.
4. Propose and prepare appropriate pharmaceutical formulation based on end use and preformulation data.
5. Source and apply some relevant compendial tests and specifications for QC of conventional dosage forms.
6. Investigate the effects of processing and packaging on pharmaceutical product manufacture.
7. Generate and use Standard Operating procedures (SOP's) throughout the entire process to record data and maintain records in accordance with cGMP.

Module Dependencies

Module Pre–Requisites
None

Module Co–Requisites
None

Incompatible Modules
None

Indicative Syllabus
This is an integrated module which combines aspects of API synthesis and formulation along with product processing and analysis.

Practical sessions will include,
Generation of Standard Operating Procedures (SOP's)
Active Pharmaceutical Ingredient (API) synthesis
Analysis of API's using a range of analytical chemical and microbiological techniques
Product Formulation
Final product testing

Emphasis throughout is on development of GMP / GLP in a pharmaceutical environment.
### Coursework Assessment Breakdown

<table>
<thead>
<tr>
<th>Description</th>
<th>% of total</th>
<th>Assessment Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Course Work / Continuous Assessment</td>
<td>70%</td>
<td></td>
</tr>
<tr>
<td>End of Semester / Year Formal Examination</td>
<td>30%</td>
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</table>

### End of Semester / Year Exam

<table>
<thead>
<tr>
<th>Outcome addressed</th>
<th>% of total</th>
<th>Assessment Week</th>
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<tbody>
<tr>
<td>Written Examination</td>
<td>1,2,4,6</td>
<td>30</td>
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</table>

### Course Work / Continuous Assessment Breakdown

<table>
<thead>
<tr>
<th>Description</th>
<th>Outcome addressed</th>
<th>% of total</th>
<th>Assessment Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question and Answer sessions.</td>
<td>1,2,3,4,5,6,7</td>
<td>70</td>
<td>Ongoing</td>
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<tr>
<td>Laboratory workshops.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Laboratory sessions.</td>
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<td></td>
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<tr>
<td>Written assessments.</td>
<td>1,2,3,4,5,6,7</td>
<td>70</td>
<td>Ongoing</td>
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<tr>
<td>Multiple choice questions.</td>
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<td>Short answer questions.</td>
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### Workload

<table>
<thead>
<tr>
<th>Type</th>
<th>Location Description</th>
<th>Hours</th>
<th>Frequency</th>
<th>Average Weekly Learner Workload</th>
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</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>Tiered Classroom</td>
<td>3</td>
<td>Weekly</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory Practical</td>
<td>Science Laboratory</td>
<td>6</td>
<td>Weekly</td>
<td>6</td>
</tr>
<tr>
<td>Independent Learning</td>
<td>Self Study</td>
<td>6</td>
<td>Weekly</td>
<td>6</td>
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</tbody>
</table>

**Total Average Weekly Learner Workload**: 15 Hours

### Module Resources

**Module Book Resources**


**Module Other Resources**

- None

**Module Additional URL’s**

- None

**Module Additional Information**

- None