

# Monash Science Pathway to Master of Professional Engineering

## MPE commencement: FEBRUARY INTAKE

This progression map provides advice on the suitable sequencing of units and guidance on how to plan unit enrolment for each semester of study. It does not substitute for the list of required units as described in the course 'Requirements' section of the [Handbook](#). Please note that the map is subject to updates. Update version: 2 September 2021

### Monash Science Pathway

You must take these units during your [Bachelor of Science](#) degree:

|   |  |
|---|--|
| <p><b>Science units:</b><br/>         (Chemistry: <a href="#">CHM1011</a> and <a href="#">CHM1022</a>) or (<a href="#">CHM1051</a> and <a href="#">CHM1052</a>)<br/> <b>OR</b><br/>         Physics: (<a href="#">PHS1001</a> and <a href="#">PHS1002</a>) or (<a href="#">PHS1011</a> and <a href="#">PHS1022</a>)<br/> <b>AND</b><br/>         Mathematics: <a href="#">MTH1030</a> plus one other mathematics unit</p> | <p><b>Engineering pathway units (24 points):</b><br/>         If you completed Chemistry prerequisites, do <a href="#">MTE2202</a> Functional materials 1 <b>OR</b><br/>         If you completed Physics prerequisites, do <a href="#">MTE2201</a> Polymers<br/> <a href="#">MTE2103</a> Mechanical properties of materials<br/> <a href="#">MTE3202</a> Functional materials 2<br/> <a href="#">MTE3203</a> Ceramics</p> |
|---|--|

### Master of Professional Engineering Specialisation – Materials engineering

| Block credits for completed Monash Science Pathway engineering units |   |  |   |  |   |
|--|---|--|---|--|---|
| <b>YEAR 1</b><br>Semester 1<br>February                              | <a href="#">MTE2102</a> Phase equilibria and phase transformations      | <a href="#">ENG5001</a> Advanced engineering data analysis | <a href="#">ENG5100</a> Professional engineer in organisation and society                           | Materials engineering enhancement unit                               | <a href="#">ENG0003</a> Continuous Professional Development |
| <b>YEAR 2</b><br>Semester 2<br>July                                  | <a href="#">MTE4596</a> Biomaterials 2                                  | <a href="#">MTE5885</a> Biomaterials and biomechanics      | <a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials | Materials engineering enhancement unit                               |   |
| <b>YEAR 2</b><br>Semester 1<br>February                              | <a href="#">MTE4102</a> Advanced materials processing and manufacturing | <a href="#">MTE3102</a> Structural materials               | <a href="#">MTE5882</a> Advanced polymeric materials  | <a href="#">MTE5197</a> Engineering with nanomaterials               |   |
| <b>YEAR 3</b><br>Semester 2<br>July                                  | <a href="#">ENG5105</a> Integrated design                               | <a href="#">ENG5005</a> Research methods                   | <a href="#">MTE5881</a> Applied crystallography in advanced materials characterisation              | <a href="#">MTE5886</a> Additive manufacturing of metallic materials |   |
| <b>YEAR 3</b><br>Semester 1<br>February                              | <a href="#">MTE5884</a> Advanced photovoltaics and energy storage       | <a href="#">ENG5006</a> Research practice                  | Materials engineering enhancement unit  | Materials engineering enhancement unit                               |   |

|   |   |   |
|---|---|---|
| <input type="checkbox"/> Part A. Engineering foundation knowledge and application | <input type="checkbox"/> Part B. Engineering specialist knowledge and application | <input type="checkbox"/> Enhancement learning |
| <input type="checkbox"/> Part D. Research and knowledge skills                    | <input type="checkbox"/> Part E. Professional practice                            |   |

| Materials engineering enhancement units   |  |
|---|--|
| <a href="#">CHE5883</a> Nanostructured membranes for separation and energy production | <a href="#">MTE5190</a> Advanced materials modelling                                 |
| <a href="#">ENG5008</a> Work integrated learning                                      | <a href="#">MTE5193</a> Materials and sustainability                                 |
| <a href="#">MEC5885</a> Energy efficiency and sustainability engineering              | <a href="#">MTE5194</a> Engineering alloy design, processing and selection           |
| <a href="#">MEC5891</a> Design for additive manufacturing                             | <a href="#">MTE5887</a> Additive manufacturing of polymeric and functional materials |

### Continuous Professional Development (CPD)

CPD is a compulsory requirement for all Master of Professional Engineering students. It's a collection of all work, volunteering and personal and professional development opportunities. You must complete a total of **420 hours** of CPD activities and submit a series of reflections on their experience with particular reference to the development of each of the key Engineers Australia Stage 1 competencies. Further information is available on the [CPD website](#).

# Monash Science Pathway to Master of Professional Engineering

## MPE commencement: JULY INTAKE

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| <p><b>Science units:</b><br/>         (Chemistry: (<a href="#">CHM1011</a> and <a href="#">CHM1022</a>) or (<a href="#">CHM1051</a> and <a href="#">CHM1052</a>)<br/> <b>OR</b><br/>         Physics: (<a href="#">PHS1001</a> and <a href="#">PHS1002</a>) or (<a href="#">PHS1011</a> and <a href="#">PHS1022</a>))<br/> <b>AND</b><br/>         Mathematics: <a href="#">MTH1030</a> plus one other mathematics unit</p> | <p><b>Engineering pathway units (24 points):</b><br/>         If you completed Chemistry prerequisites, do <a href="#">MTE2202</a> Functional materials 1 <b>OR</b><br/>         If you completed Physics prerequisites, do <a href="#">MTE2201</a> Polymers<br/> <a href="#">MTE2102</a> Phase equilibria and phase transformations<br/> <a href="#">MTE2103</a> Mechanical properties of materials<br/> <a href="#">MTE3102</a> Structural materials</p> |
|---|--|

### Master of Professional Engineering Specialisation – Materials engineering

| Block credits for completed Monash Science Pathway engineering units |  |  |   |   |   |
|--|--|--|---|---|---|
| <b>YEAR 1</b><br>Semester 2<br>July                                  | <a href="#">MTE3203</a> Ceramics   | <a href="#">MTE3202</a> Functional materials 2                       | <a href="#">MTE4596</a> Biomaterials 2  | Materials engineering enhancement unit                                    | <a href="#">ENG0003</a> Continuous Professional Development |
| <b>YEAR 2</b><br>Semester 1<br>February                              | <a href="#">MTE4102</a> Advanced materials processing and manufacturing                | <a href="#">MTE5882</a> Advanced polymeric materials                 | <a href="#">ENG5001</a> Advanced engineering data analysis  | <a href="#">ENG5100</a> Professional engineer in organisation and society |   |
| <b>YEAR 2</b><br>Semester 2<br>July                                  | <a href="#">MTE5881</a> Applied crystallography in advanced materials characterisation | <a href="#">MTE5885</a> Biomaterials and biomechanics                | <a href="#">MTE5883</a> Environmental durability and protection of metals and engineering materials | Materials engineering enhancement unit                                    |   |
| <b>YEAR 3</b><br>Semester 1<br>February                              | <a href="#">MTE5197</a> Engineering with nanomaterials                                 | <a href="#">MTE5884</a> Advanced photovoltaics and energy storage    | <a href="#">ENG5005</a> Research methods  | Materials engineering enhancement unit                                    |   |
| <b>YEAR 3</b><br>Semester 2<br>July                                  | <a href="#">ENG5105</a> Integrated design  | <a href="#">MTE5886</a> Additive manufacturing of metallic materials | <a href="#">ENG5006</a> Research practice   | Materials engineering enhancement unit                                    |   |

- |   |   |   |
|---|---|---|
| <input type="checkbox"/> Part A. Engineering foundation knowledge and application | <input type="checkbox"/> Part B. Engineering specialist knowledge and application | <input type="checkbox"/> Enhancement learning |
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| <a href="#">MEC5885</a> Energy efficiency and sustainability engineering              | <a href="#">MTE5194</a> Engineering alloy design, processing and selection           |
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