

# Bachelor of Medical Engineering (Honours) [40126] – Medical Devices Major

## TRANSITION ARRANGEMENTS - INFORMATION FOR STUDENTS WHO COMMENCED IN THE PROGRAM PRIOR TO SEMESTER 2 2021

Changes have been made to the Bachelor of Medical Engineering (Honours) program from 2021 onwards.

Information regarding the changes for students completing the Medical Devices major can be found in this document. Information about the program structure can be found on pages 2 and 3. Information on enrolment and transition can be found on pages 4, 5, and 6.

### Summary of Changes

	Pre-Semester 2 2021	Semester 2 2021 Onwards
<b>Core Courses</b>	160	130
<b>HUBS Directed Course List A</b>	-	10
<b>HUBS Directed Course List B</b>	-	20
<b>Medical Devices Major</b>	120	150
<b>Electives</b>	40	10

### New courses

40 units of new courses are being created to support students undertaking the Medical Devices major within the Medical Engineering (Honours) degree.

Course Code	Course Name	Where course sits in structure	Course available from
MENG3500	Medical Engineering Regulatory Requirements and Quality Systems	Core	Sem 2 2021
MENG3200	Medical Instrumentation and Actuation	Major	Sem 2 2022
MENG3451	Medical Imaging and Signal Processing	Major	Sem 2 2022
MENG4210	Medical Electronics Design	Major	Sem 1 2022

### Frequently Asked Questions

#### ***Can I still complete my major?***

Yes, you will still be able to complete your major.

#### ***Does this change what I need to enrol in?***

The courses you need to enrol in may have changed, however, you will not be required to complete more than the 320 units required for your program.

#### ***Will this delay my graduation?***

No. As the changes do not increase the total number of courses you need to complete these changes will not delay your graduation.

#### ***I have completed a course that is no longer offered. Does it still count?***

Yes, all courses successfully completed prior to Sem 2, 2021 will continue to count towards your program and major requirements. Please see the transition table information to check your remaining major requirements. If you are unsure what to enrol in, please email [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) before enrolment to check that the courses you plan to complete will meet the requirements of your program.

**If you have any questions, please contact your Academic Program Advisor at [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au).**

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### Changes to the Program Structure

B Med Eng (Hons) Core Courses – Pre Sem 2, 2021			B Med Eng (Hons) Core Courses – Sem 2, 2021 onwards		
Course Code	Course Title	Units	Course Code	Course Title	Units
CHEM1010^	Introductory Chemistry I	10			
			#ENGG1003	Introduction to Procedural Programming	10
ENGG1500	Introduction to Professional Engineering	10	ENGG1500	Introduction to Professional Engineering	10
HUBS1105~	Musculoskeletal Anatomy	10			
HUBS1401~	Human Bioscience	10			
HUBS1420~	Terminology and Communication in Biomedicine	10			
MATH1110	Mathematics for Engineering, Science and Technology 1	10	MATH1110	Mathematics for Engineering, Science and Technology 1	10
MATH1120	Mathematics for Engineering, Science and Technology 2	10	MATH1120	Mathematics for Engineering, Science and Technology 2	10
ENGG2500	Sustainable Engineering Practice	10	ENGG2500	Sustainable Engineering Practice	10
HUBS2103^	Neural and Visceral Anatomy	10			
HUBS2206^	Human Biochemistry and Cell Biology	10			
			#MATH2310	Calculus of Science and Engineering	10
ENGG3500	Managing Engineering Projects	10	ENGG3500	Managing Engineering Projects	10
			*MENG3500	Medical Engineering Regulatory Requirements and Quality Systems	10
MENG3800	Medical Engineering Research	10	MENG3800	Medical Engineering Research	10
ENGG4500	Engineering Complexity	10	ENGG4500	Engineering Complexity	10
MENG4800A	Medical Engineering Project A	10	MENG4800A	Medical Engineering Project A	10
MENG4800B	Medical Engineering Project B	20	MENG4800B	Medical Engineering Project B	20
<b>Total core</b>		<b>160</b>	<b>Total core</b>		<b>130</b>
			<b>HUBS Directed Course List A – 10 units</b> Choose 10 units from the following directed courses		
			~HUBS1105	Musculoskeletal Anatomy	10
			+HUBS1109	Anatomy for Biomedical Science	10
			<b>HUBS Directed course List B – 20 units</b> Complete a course pair from either [HUBS1401 and HUBS1420] or [HUBS1403 and HUBS1404].		
			~HUBS1401	Human Bioscience	10
			~HUBS1420	Terminology and Communication in Biomedicine	10
			+HUBS1403	Biomedical Science Part 1	10
			+HUBS1404	Biomedical Science Part 2	10
<b>Total HUBS Directed</b>		<b>0</b>	<b>Total HUBS Directed</b>		<b>30</b>
<b>Total electives</b>		<b>40</b>	<b>Total electives</b>		<b>10</b>
<b>Key</b>					
# Medical Devices major course to become Core for all students who commence in Sem 2, 2021 onwards.					
^ Course no longer part of program. If you have already completed this course, it still counts towards your degree.					
~ Course no longer core, but part of a Directed course list.					
+ Existing course added to program					
* New course to be offered for the first time in Semester 2, 2021.					

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### Changes to the Program Structure continued.

B Med Eng (Hons) Medical Devices Major Courses - Pre Sem 2, 2021			B Med Eng (Hons) Medical Devices Major Courses - Sem 2, 2021 onwards		
Course Code	Course Title	Units	Course Code	Course Title	Units
ELEC1310	Introduction to Electrical Engineering	10	ELEC1310	Introduction to Electrical Engineering	10
ELEC1710	Digital and Computer Electronics 1	10	ELEC1710	Digital and Computer Electronics 1	10
#ENGG1003	Introduction to Procedural Programming	10			
PHYS1210	Advanced Physics I	10	PHYS1210	Advanced Physics I	10
PHYS1220	Advanced Physics II	10	PHYS1220	Advanced Physics II	10
ELEC2320	Electrical and Electronics Circuits	10	ELEC2320	Electrical and Electronics Circuits	10
ELEC2720	Introduction to Embedded Computing	10	ELEC2720	Introduction to Embedded Computing	10
			+ELEC2430	Signals and Systems	10
HUBS2505	Human Pathophysiology	10	HUBS2505	Human Pathophysiology	10
			+HUBS2507	Integrative Physiology for Biomedical Sciences	10
			+SENG2130	Systems Analysis and Design	10
#MATH2310	Calculus of Science and Engineering	10			
ELEC3240	Analog Electronics	10	ELEC3240	Analog Electronics	10
ELEC3730	Digital and Computer Electronics	10	ELEC3730	Digital and Computer Electronics	10
ELEC4210^	Electronics Design	10			
			*MENG4210	Medical Electronics Design	10
			*MENG3200	Medical Instrumentation and Actuation	10
			*MENG3451	Medical Imaging and Signal Processing	10
<b>Total core</b>		<b>120</b>	<b>Total core</b>		<b>150</b>
<b>Key</b>					
# Medical Devices major course to become Core for all students who commence in Sem 2, 2021 onwards.					
^ Course no longer part of program. If you have already completed this course, it still counts towards your degree.					
+ Existing course added to the Medical Devices major.					
* New course to be offered from 2022 onward					

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## Transition and enrolment information

### ALL B MEDICAL ENGINEERING (HONOURS) - MEDICAL DEVICES MAJOR STUDENTS

#### One-for-one equivalent courses:

If you have not successfully completed:	Then you must complete:
<p><b>Mathematics Core Courses</b> Students previously were able to choose from the following options for Math core courses:</p> <p><b>Option 1)</b> MATH1110 Mathematics for Engineering, Science and Technology 1 <b>AND</b> MATH1120 Mathematics for Engineering, Science and Technology 2</p> <p><b>OR</b></p> <p><b>Option 2)</b> MATH1210 Mathematical Discovery 1 <b>AND</b> MATH1220 Mathematical Discovery 2</p>	<p><b>From 2021</b>, the option to do MATH1210 and MATH1220 has been removed from the program.</p> <p><b>From Semester 1 2021 onwards:</b></p> <p>1) if you have not yet completed MATH1210 you must complete MATH1110; and</p> <p>2) if you haven't completed MATH1220 then you must complete MATH1120.</p>
<p>HUBS1105 Musculoskeletal Anatomy</p>	<p><b>Choose 10 units from the following directed courses</b> HUBS1105 Musculoskeletal Anatomy HUBS1109 Anatomy for Biomedical Science</p>
<p>HUBS1401 Human Bioscience and/or HUBS1420 Terminology and Communication in Biomedicine</p>	<p>If you have successfully completed <b>BOTH</b> HUBS1401 and HUBS1420, then these courses will continue to count towards your degree requirements.</p> <p>If you have successfully completed <b>EITHER</b> HUBS1401 <b>OR</b> HUBS1420, then you must complete the remaining course from this Directed pairing.</p> <p>If you have successfully completed <b>NEITHER</b> HUBS1401 or HUBS1420, then you have the choice to complete either:</p> <p>a) HUBS1401 and HUBS1420, or b) HUBS1403 and HUBS 1404</p>
<p>ELEC4210 Electronics Design (previously added to replace Directed course)</p>	<p>MENG4210 Medical Electronics Design</p>

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### Changes to program requirements without one-for-one equivalent courses available

In 2021, 60 units (i.e. 30 units from the Core/Major, and 30 units of Electives) of courses were removed from the program for students in the Medical Devices major without a direct one-for-one replacement. Students should replace these removed courses with the newly prescribed courses.

#### Courses removed:

- CHEM1010
- HUBS2103
- HUBS2206
- 30 units of electives

#### Courses Added to program:

Course Code	Current Availability
HUBS2507	Semester 2. Available now
SENG2130	Semester 1. Available now
ELEC2430	Semester 2. Available now
MENG3451	First offered in Semester 2, 2022. Will replace current course MENG3450.
MENG3200	First offered in Semester 2, 2022
MENG3500	First offered in Semester 2, 2021. Will be available from 2022 onwards as Semester 1 course.

#### Courses completed

#### You need to complete

If you have successfully completed 0 units of the 60 units removed	<ul style="list-style-type: none"> <li>• ELEC2430</li> <li>• HUBS2507</li> <li>• SENG2130</li> <li>• MENG3200</li> <li>• MENG3451</li> <li>• MENG3500</li> </ul>
If you have successfully completed 10 units of the 60 units removed	<ul style="list-style-type: none"> <li>• ELEC2430</li> <li>• HUBS2507</li> <li>• MENG3200</li> <li>• MENG3451</li> <li>• MENG3500</li> </ul>
If you have successfully completed 20 units of the 60 units removed	<ul style="list-style-type: none"> <li>• ELEC2430</li> <li>• MENG3200</li> <li>• MENG3450* or MENG3451</li> <li>• MENG3500</li> </ul> <p>Students are strongly encouraged to take MENG3450 in Semester 2 2021 if they have capacity.</p>
If you have successfully completed 30 units of the 60 units removed	<ul style="list-style-type: none"> <li>• MENG3200</li> <li>• MENG3450 in Sem 2 2021* or ELEC2430</li> <li>• MENG3500</li> </ul> <p>Students are strongly encouraged to take MENG3450 in Semester 2 2021 if they have capacity. If students cannot complete MENG3540 in 2021, please complete ELEC2430</p>
If you have successfully completed 40 units of the 60 units removed	<ul style="list-style-type: none"> <li>• Either MENG3200 or MENG3450 in Sem 2, 2021*</li> <li>• MENG3500</li> </ul> <p>Students are strongly encouraged to take MENG3450 in Semester 2 2021 if they have capacity. If students cannot complete MENG3450 in Semester 2 2021, please complete MENG3200 in Semester 2 2022.</p>

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#### Changes to program requirements without one-for-one equivalent courses available continued.

Courses completed	You need to complete
If you have successfully completed 50 units of the 60 units removed	MENG3500
If you have successfully completed all 60 units of the 60 units removed	Students who have completed all 60 units of removed courses and all electives for their program should seek advice on their final courses. Approval to count MENG3500 in lieu of other program requirements may be granted where necessary. Contact <a href="mailto:programadvice@newcastle.edu.au">programadvice@newcastle.edu.au</a> for further information.