

## PROGRAM PLAN

# BACHELOR OF MEDICAL ENGINEERING (HONOURS)

## Medical Devices Major

**PROGRAM OPTION:**

Full time

**START DATE:**

Semester 1 2018 to 2021

**LOCATION:**

Callaghan

This Program Plan is an enrolment guide to ensure you are on track to graduate. If at any time you wish to vary from this program plan seek advice from your Academic Program Advisor to ensure you remain on track.

 [PROGRAM HANDBOOK](#) [COURSE HANDBOOK](#)

## Information for Your Enrolment in Semester 2 2021

### Program Plan

*For students who commenced study in Semester 1 2021*

### Transition Information

### Program Plan

*For students who commenced study in Semester 1 2020*

### Transition Information

### Program Plan

*For students who commenced study in Semester 1 2019*

### Transition Information

### Program Plan

*For students who commenced study in Semester 1 2018*

### Transition Information

**To be eligible to graduate make sure you have completed 320 units, as specified on the Plan for the year that you commenced study.**

- Students must not exceed 120 units at 1000 level in this program.
- It is also a requirement that students complete a total of 12 weeks of **industrial experience**.
- The duration of this program is 4 years full-time (40 units per semester) or part-time equivalent.
- The maximum time to complete this program is 10 years.

# PROGRAM PLAN

## BACHELOR OF MEDICAL ENGINEERING (HONOURS)

### Medical Devices Major

To be eligible to graduate make sure you have completed 320 units:

- Core and Major Compulsory courses – 280 units
- Directed courses – 30 units.
- Electives – 10 units.

Commencing in Semester 1 2021

YEAR	SEMESTER	COURSE	DESCRIPTION	STATUS	NOTES
YEAR 1	SEMESTER 1	ENGG1003	Introduction to Procedural Programming	CORE	Changed from COMPULSORY to CORE in 2021
		ENGG1500	Introduction to Professional Engineering	CORE	
		HUBS1401	Human Bioscience	DIRECTED	Changed from CORE to DIRECTED in 2021
		MATH1110	Mathematics for Engineering, Science and Technology 1	CORE	
YEAR 2	SEMESTER 2	ELEC1310	Introduction to Electrical Engineering	COMPULSORY	
		ELEC1710	Digital and Computer Electronics 1	COMPULSORY	
		HUBS1109	Anatomy for Biomedical Science	DIRECTED	Replaces CORE Course HUBS1105 in 2021
		MATH1120	Mathematics for Engineering, Science and Technology 2	CORE	
YEAR 2	SEMESTER 1	SENG2130	Systems Analysis and Design	COMPULSORY	See Transition Arrangements
		ELEC2320	Electrical and Electronic Circuits	COMPULSORY	
		HUBS1420	Terminology and Communication in Biomedicine	DIRECTED	Changed from CORE to DIRECTED in 2021 – required with HUBS1401
		PHYS1210	Advanced Physics I	COMPULSORY	
YEAR 3	SEMESTER 1	ELEC2720	Introduction to Embedded Computing	COMPULSORY	
		HUBS2505	Human Pathophysiology	COMPULSORY	
		MENG3500	Medical Regulations	CORE	See Transition Arrangements
		ELECTIVE		ELECTIVE	
YEAR 3	SEMESTER 2	MATH2310	Calculus of Science & Engineering	CORE	Changed from COMPULSORY to CORE in 2021
		ELEC3240	Analog Electronics	COMPULSORY	
		ELEC2430	Circuits and Signals	COMPULSORY	See Transition Arrangements
		HUBS2507	Integrated Physiology for Biomedical Science	COMPULSORY	See Transition Arrangements
YEAR 4	SEMESTER 1	ENGG2500	Sustainable Engineering Practice	CORE	
		MENG3200	Medical Instrumentation & Actuation	COMPULSORY	See Transition Arrangements
		MENG3800	Medical Engineering Research	CORE	
		PHYS1220	Advanced Physics II	COMPULSORY	
YEAR 4	SEMESTER 2	ELEC3730	Digital and Computer Electronics 2	COMPULSORY	
		MENG4210	Medical Electronics Design	COMPULSORY	Replacing ELEC4210 in 2022
		ENGG3500	Managing Engineering Projects	CORE	
		MENG4800A	Medical Engineering Project A	CORE	
YEAR 4	SEMESTER 2	MENG3451	Medical Imaging & Signal Processing	COMPULSORY	See Transition Arrangements
		ENGG4500	Engineering Complexity	CORE	
		MENG4800B	Medical Engineering Project B	CORE	This course must be taken following MENG4800A (20 units)

COMPULSORY PROFESSIONAL PRACTICE: INDUSTRIAL EXPERIENCE 12 WEEKS

[Back to Menu](#)

## PROGRAM PLAN

# BACHELOR OF MEDICAL ENGINEERING (HONOURS)

## Medical Devices Major

### Transition Information - for students who commenced study in Semester 1 2021



Denotes courses you have already completed for your program. If you have not completed all of these courses you can still follow this program plan. If you need any assistance in planning your studies, you can contact [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) for enrolment advice:

The following courses have been removed from this program. If you have completed or received credit for any of these courses please refer to the transition advice available in the Program Handbook:

**CHEM1010**                      **More than 10 units of electives (including MATH1002)**  
**HUBS2206**                      **HUBS2103**

**HUBS1105** – This course has been replaced by the option to take either **HUBS1109** or **HUBS1105** in 2021. If you have not previously completed or received credit for HUBS1105, you can choose to complete either course for your program.

**HUBS1401 and HUBS1420** – These two courses have been replaced with the option to take either both **HUBS1401 and HUBS1420**, or both **HUB1403 and HUBS1404** in 2021. If you have already completed HUBS1401, you must complete **HUBS1420**. Further information on this arrangement is available in your Program Handbook and in the program transition information.

*Transition Note:* New courses have been added to this program in 2021. Please note that these are not direct replacements for removed courses. If your enrolment pattern does not match the sequence indicated on this Program Plan, please refer to the transition arrangements in the Program Handbook. If you need any advice in relation to these arrangements, please contact [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) for assistance.

[Back to Menu](#)

# PROGRAM PLAN
















## BACHELOR OF MEDICAL ENGINEERING (HONOURS)

### Medical Devices Major

To be eligible to graduate make sure you have completed 320 units:

- Core and Major Compulsory courses – 280 units
- Directed courses – 30 units.
- Electives – 10 units at 2000 level or higher

Commencing in Semester 1 2020

YEAR 1	<b>SEMIESTER 1</b> <b>ENGG1003</b> Introduction to Procedural Programming CORE  <i>Changed from COMPULSORY to CORE in 2021</i>	<b>ENGG1500</b> Introduction to Professional Engineering CORE 	<b>HUBS1401</b> Human Bioscience DIRECTED  <i>Changed from CORE to DIRECTED in 2021</i>	<b>MATH1110</b> Mathematics for Engineering, Science and Technology 1 CORE  <i>Replaced option of MATH1110 OR MATH1210</i>	<b>SEMIESTER 2</b> <b>ELEC1310</b> Introduction to Electrical Engineering COMPULSORY 	<b>ELEC1710</b> Digital and Computer Electronics 1 COMPULSORY 	<b>HUBS1420</b> Terminology and Communication in Biomedicine DIRECTED  <i>Offered in Semester 1 from 2021 Changed from CORE to DIRECTED in 2021</i>	<b>MATH1120</b> Mathematics for Engineering, Science and Technology 2 CORE  <i>Replaced option of MATH1120 OR MATH1220</i>
	<b>SEMIESTER 1</b> <b>CHEM1010</b> Introductory Chemistry I CORE  <i>See Transition Arrangements</i>	<b>ELEC2320</b> Electrical and Electronic Circuits COMPULSORY 	<b>HUBS1105</b> Musculoskeletal Anatomy DIRECTED  <i>Changed from CORE to DIRECTED in 2021</i>	<b>PHYS1210</b> Advanced Physics I COMPULSORY 		<b>SEMIESTER 2</b> <b>MATH2310</b> Calculus of Science & Engineering CORE  <i>Changed from COMPULSORY to CORE in 2021</i>	<b>ELEC3240</b> Analog Electronics COMPULSORY	<b>ELEC2430</b> Circuits and Signals COMPULSORY <i>See Transition Arrangements</i>
YEAR 3	<b>SEMIESTER 1</b> <b>ELEC2720</b> Introduction to Embedded Computing COMPULSORY  <i>Replaced DIRECTED in 2021</i>	<b>HUBS2505</b> Human Pathophysiology COMPULSORY	<b>MENG3500</b> Medical Regulations CORE <i>See Transition Arrangements</i>	<b>ELECTIVE*</b> 2000 level or higher <b>SENG2130</b> <i>recommended</i> ELECTIVE	<b>SEMIESTER 2</b> <b>ENGG2500</b> Sustainable Engineering Practice CORE  <i>In 2021 changed from Sem 1 to Sem 2</i>	<b>MENG3200</b> Medical Instrumentation & Actuation COMPULSORY <i>See Transition Arrangements</i>	<b>MENG3800</b> Medical Engineering Research CORE	<b>PHYS1220</b> Advanced Physics II COMPULSORY
	<b>SEMIESTER 1</b> <b>ELEC3730</b> Digital and Computer Electronics 2 COMPULSORY	<b>MENG4210</b> Medical Electronics Design COMPULSORY <i>Replaced DIRECTED in 2021 Replacing ELEC4210 in 2022</i>	<b>ENGG3500</b> Managing Engineering Projects CORE	<b>MENG4800A</b> Medical Engineering Project A CORE	<b>SEMIESTER 2</b> <b>MENG3451</b> Medical Imaging & Signal Processing COMPULSORY <i>See Transition Arrangements</i>	<b>ENGG4500</b> Engineering Complexity CORE	<b>MENG4800B</b> Medical Engineering Project B <i>This course must be taken following MENG4800A (20 units)</i> CORE	

COMPULSORY PROFESSIONAL PRACTICE: INDUSTRIAL EXPERIENCE 12 WEEKS

[Back to Menu](#)

## PROGRAM PLAN

# BACHELOR OF MEDICAL ENGINEERING (HONOURS)

## Medical Devices Major

### Transition Information - for students who commenced study in Semester 1 2020



Denotes courses you have already completed for your program. If you have **not** completed one or more of the following courses, please refer to the transition arrangements in the Program Handbook. If you need any assistance in planning your studies, you can contact [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) for enrolment advice:

#### CHEM1010

The following courses have also been removed from this program. If you have completed or received credit for any of these courses please refer to the transition advice available in the Program Handbook:

**HUBS2206**                      **More than 10 units of electives (including MATH1002)**  
**HUBS2103**

**HUBS1105** – This course has been replaced by the option to take either **HUBS1109** or **HUBS1105** in 2021. If you have not previously completed or received credit for HUBS1105, you can choose to complete either course for your program.

**HUBS1401 and HUBS1420** – These two courses have been replaced with the option to take either both **HUBS1401 and HUBS1420**, or both **HUB1403 and HUBS1404** in 2021. If you have already completed HUBS1401, you must complete **HUBS1420**. Further information on this arrangement is available in your Program Handbook and in the program transition information.

*Transition Note:* New courses have been added to this program in Semester 1 2021. Please note that these are not direct replacements for removed courses. If your enrolment pattern does not match the sequence indicated on this Program Plan, please refer to the transition arrangements in the Program Handbook. If you need you need any advice in relation to these arrangements, please contact [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) for assistance.

\***SENG2130** has been added to this major from Semester 2 2021. It is strongly recommended that you take this course as your elective in Year 3 Semester 1 if you are able.

**From Semester 1 2021 onwards** the option to complete MATH1210 and MATH1220 was removed from this program. If you previously completed MATH1210 you do not need to take MATH1110. If you previously completed MATH1220 then you do not need to complete MATH1120.

**From Semester 1 2021 onwards** 20 units of directed courses have been removed from this program, replaced by ELEC2720 and ELEC4210. If you have already completed a directed course this will still be counted to your program. If you have not completed any directed courses you should complete ELEC2720 and ELEC4210 or MENG4210. Further information on removed directed courses can be found in the program transition information in the Program Handbook.

[Back to Menu](#)

# PROGRAM PLAN

## BACHELOR OF MEDICAL ENGINEERING (HONOURS)

### Medical Devices Major

Commencing in Semester 1 2019

To be eligible to graduate make sure you have completed 320 units:

- Core and Major Compulsory courses – 280 units
- Medical Biomechanics Directed courses – 30 units.
- Electives – 10 units at 2000 level or higher

Year	Semester	Course	Description	Category	Status
YEAR 1	SEMESTER 1	ENGG1003	Introduction to Procedural Programming	CORE	✓
		ENGG1500	Introduction to Professional Engineering	CORE	✓
		HUBS1401	Human Bioscience	DIRECTED	✓
		MATH1110	Mathematics for Engineering, Science and Technology 1	CORE	✓
	SEMESTER 2	ELEC1310	Introduction to Electrical Engineering	COMPULSORY	✓
		ELEC1710	Digital and Computer Electronics 1	COMPULSORY	✓
		HUBS1420	Terminology and Communication in Biomedicine	DIRECTED	✓
		MATH1120	Mathematics for Engineering, Science and Technology 2	CORE	✓
YEAR 2	SEMESTER 1	CHEM1010	Introductory Chemistry I	CORE	✓
		ELEC2320	Electrical and Electronic Circuits	COMPULSORY	✓
		HUBS1105	Musculoskeletal Anatomy	DIRECTED	✓
		PHYS1210	Advanced Physics I	COMPULSORY	✓
	SEMESTER 2	MATH2310	Calculus of Science & Engineering	CORE	✓
		ENGG2500	Sustainable Engineering Practice	CORE	✓
		HUBS2103	Neural and Visceral Anatomy	CORE	✓
		ELECTIVE*	2000 level or higher	ELECTIVE	✓
YEAR 3	SEMESTER 1	ELEC2720	Introduction to Embedded Computing	COMPULSORY	✓
		ENGG3500	Managing Engineering Projects	CORE	✓
		HUBS2206	Human Biochemistry and Cell Biology	CORE	✓
		HUBS2505	Human Pathophysiology	COMPULSORY	✓
	SEMESTER 2	ELEC3240	Analog Electronics	COMPULSORY	✓
		MENG3450	Medical Imaging	COMPULSORY	✓
		MENG3800	Medical Engineering Research	CORE	✓
		PHYS1220	Advanced Physics II	COMPULSORY	✓
YEAR 4	SEMESTER 1	ELEC3730	Digital and Computer Electronics 2	COMPULSORY	✓
		MENG3500	Medical Regulations	CORE	✓
		MENG4210	Medical Electronics Design	COMPULSORY	✓
		MENG4800A	Medical Engineering Project A	CORE	✓
	SEMESTER 2	MENG3200	Medical Instrumentation & Actuation	COMPULSORY	✓
		ENGG4500	Engineering Complexity	CORE	✓
		MENG4800B	Medical Engineering Project B	CORE	✓

COMPULSORY PROFESSIONAL PRACTICE: INDUSTRIAL EXPERIENCE 12 WEEKS

[Back to Menu](#)

## PROGRAM PLAN

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### Transition Information - for students who commenced study in Semester 1 2019



Denotes courses you have already completed for your program. If you have **not** completed one or more of the following courses, please refer to the transition arrangements in the Program Handbook. If you need any assistance in planning your studies, you can contact [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) for enrolment advice:

CHEM1010  
HUBS2206

HUBS2103

**30 units of electives** also been removed from this program. If you have completed or received credit for any of these courses please refer to the transition advice available in the Program Handbook:

#### More than 10 units of electives (including MATH1002)

**HUBS1105** – This course has been replaced by the option to take either **HUBS1109** or **HUBS1105** in 2021. If you have not previously completed or received credit for HUBS1105, you can choose to complete either course for your program.

**HUBS1401 and HUBS1420** – These two courses have been replaced with the option to take either both **HUBS1401 and HUBS1420**, or both **HUB1403 and HUBS1404** in 2021. If you have already completed HUBS1401, you must complete **HUBS1420**. Further information on this arrangement is available in your Program Handbook and in the program transition information.

*Transition Note:* New courses have been added to this program in Semester 1 2021. Please note that these are not direct replacements for removed courses. If your enrolment pattern does not match the sequence indicated on this Program Plan, please refer to the transition arrangements in the Program Handbook. If you need you need any advice in relation to these arrangements, please contact [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) for assistance.

**From Semester 1 2021 onwards** the option to complete MATH1210 and MATH1220 was removed from this program. If you previously completed MATH1210 you do not need to take MATH1110. If you previously completed MATH1220 then you do not need to complete MATH1120.

**From Semester 1 2021 onwards** 20 units of directed courses have been removed from this program, replaced by ELEC2720 and ELEC4210. If you have already completed a directed course this will still be counted to your program. If you have not completed any directed courses you should complete ELEC2720 and ELEC4210 or MENG4210. Further information on removed directed courses can be found in the program transition information in the Program Handbook.

**From 2022 onwards** ELEC4210 will be replaced by MENG4210, and MENG3540 will be replaced by MENG3541.

[Back to Menu](#)

# PROGRAM PLAN

## BACHELOR OF MEDICAL ENGINEERING (HONOURS)

### Medical Devices Major

Commencing in Semester 1 2018

To be eligible to graduate make sure you have completed 320 units:

- Core and Major Compulsory courses – minimum of 260 units
- Directed courses – 30 units.
- Electives – maximum of 30 units.

Year	Semester	Course	Description	Category	Status
YEAR 1	SEMESTER 1	ENGG1003	Introduction to Procedural Programming	CORE	✓
		ENGG1500	Introduction to Professional Engineering	CORE	✓
		HUBS1401	Human Bioscience	DIRECTED	✓
		MATH1110	Mathematics for Engineering, Science and Technology 1	CORE	✓
YEAR 2	SEMESTER 1	CHEM1010	Introductory Chemistry I	CORE	✓
		ELEC2320	Electrical and Electronic Circuits	COMPULSORY	✓
		HUBS1105	Musculoskeletal Anatomy	DIRECTED	✓
		PHYS1210	Advanced Physics I	COMPULSORY	✓
YEAR 3	SEMESTER 1	ELEC2720	Introduction to Embedded Computing	COMPULSORY	✓
		ENGG3500	Managing Engineering Projects	CORE	✓
		HUBS2206	Human Biochemistry and Cell Biology	CORE	✓
		HUBS2505	Human Pathophysiology	COMPULSORY	✓
YEAR 4	SEMESTER 1	ELEC3730	Digital and Computer Electronics 2	COMPULSORY	✓
		ELEC4210	Electronics Design	COMPULSORY	✓
		ELECTIVE*	2000 level or higher	ELECTIVE	✓
		MENG4800A	Medical Engineering Project A	CORE	✓
YEAR 2	SEMESTER 2	ELEC1310	Introduction to Electrical Engineering	COMPULSORY	✓
		ELEC1710	Digital and Computer Electronics 1	COMPULSORY	✓
		HUBS1420	Terminology and Communication in Biomedicine	DIRECTED	✓
		MATH1120	Mathematics for Engineering, Science and Technology 2	CORE	✓
YEAR 2	SEMESTER 2	MATH2310	Calculus of Science & Engineering	CORE	✓
		ENGG2500	Sustainable Engineering Practice	CORE	✓
		HUBS2103	Neural and Visceral Anatomy	CORE	✓
		ELECTIVE*	2000 level or higher	ELECTIVE	✓
YEAR 2	SEMESTER 2	ELEC3240	Analog Electronics	COMPULSORY	✓
		ELECTIVE*	2000 level or higher	ELECTIVE	✓
		MENG3800	Medical Engineering Research	CORE	✓
		PHYS1220	Advanced Physics II	COMPULSORY	✓
YEAR 2	SEMESTER 2	MENG3500	Medical Regulations	CORE	✓
		ENGG4500	Engineering Complexity	CORE	✓
		MENG4800B	Medical Engineering Project B <i>This course must be taken following MENG4800A (20 units)</i>	CORE	✓

COMPULSORY PROFESSIONAL PRACTICE: INDUSTRIAL EXPERIENCE 12 WEEKS

[Back to Menu](#)



## PROGRAM PLAN

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### Transition Information - for students who commenced study in Semester 1 2018



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CHEM1010                      30 units of Electives (including MATH1002)  
HUBS2206                      HUBS2103

**HUBS1105** – This course has been replaced by the option to take either **HUBS1109** or **HUBS1105** in 2021. If you have not previously completed or received credit for HUBS1105, you can choose to complete either course for your program.

**HUBS1401 and HUBS1420** – These two courses have been replaced with the option to take either both **HUBS1401 and HUBS1420**, or both **HUB1403 and HUBS1404** in 2021. If you have already completed HUBS1401, you must complete **HUBS1420**. Further information on this arrangement is available in your Program Handbook and in the program transition information.

*Transition Note:* New courses have been added to this program in Semester 1 2021. Please note that these are not direct replacements for removed courses. If your enrolment pattern does not match the sequence indicated on this Program Plan, please refer to the transition arrangements in the Program Handbook. If you need any advice in relation to these arrangements, please contact [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) for assistance.

**\*\*MENG3500** – If you are completing your studies this semester, you must complete MENG3500. You can do so without exceeding 320 units of study by using your remaining elective course. If you have completed all of your program electives, please contact [programadvice@newcastle.edu.au](mailto:programadvice@newcastle.edu.au) for advice on your Semester 2 2021 enrolment.

**From Semester 1 2021 onwards** the option to complete MATH1210 and MATH1220 was removed from this program. If you previously completed MATH1210 you do not need to take MATH1110. If you previously completed MATH1220 then you do not need to complete MATH1120.

**From Semester 1 2021 onwards** 20 units of directed courses have been removed from this program, replaced by ELEC2720 and ELEC4210. If you have already completed a directed course this will still be counted to your program. If you have not completed a directed course you should complete ELEC2720 or ELEC4210. Further information on removed directed courses can be found in the program transition information in the Program Handbook.

**From 2022 onwards** ELEC4210 will be replaced by MENG4210.

[Back to Menu](#)