

## PROGRAM PLAN

# BACHELOR OF MEDICAL ENGINEERING (HONOURS)

## Medical Biomechanics Major

### PROGRAM OPTION:

Full time

### START DATE:

Semester 2 2018 to 2020

### 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 2 2020*

### Transition Information

### Program Plan

*For students who commenced study in Semester 2 2019*

### Transition Information

### Program Plan

*For students who commenced study in Semester 2 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 Biomechanics Major

Commenced Study in Semester 2 2020

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

Year	Semester	Course	Category	Status
YEAR 1	SEMESTER 1	CIVL1100 Fundamentals of Engineering Mechanics	COMPULSORY	See transition information
		ELEC1310 Introduction to Electrical Engineering	COMPULSORY	See transition information
		HUBS1420 Terminology and Communication in Biomedicine	DIRECTED	Changed from CORE to DIRECTED in 2021
		MATH1110 Mathematics for Engineering, Science and Technology 1	CORE	Replaced option of MATH1110 OR MATH1210
YEAR 2	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
		MATH1120 Mathematics for Engineering, Science and Technology 2	CORE	Replaced option of MATH1120 OR MATH1220
YEAR 2	SEMESTER 2	ENGG2300 Engineering Fluid Mechanics	COMPULSORY	Replaced MECH2710
		EXSS1040 Functional Anatomy (Ourimbah Campus)	COMPULSORY	See transition information
		MECH1750 Materials 1	COMPULSORY	See transition information
		HUBS1109 Anatomy for Biomedical Science	DIRECTED	Replaces CORE Course HUBS1105 in 2021
YEAR 3	SEMESTER 1	MATH2310 Calculus of Science & Engineering	CORE	Changed from COMPULSORY to CORE in 2021
		MECH1110 Introduction to Mechanical Engineering Design	COMPULSORY	In 2021 changed from Sem 2 to Sem 1
		EXSS2020 Biomechanics (Ourimbah Campus)	COMPULSORY	See transition information
		ENGG2100 Engineering Risk and Uncertainty	COMPULSORY	See transition information
YEAR 3	SEMESTER 2	MECH3720 Thermodynamics	COMPULSORY	See transition information
		EXSS3060 Advanced Biomechanics (Ourimbah Campus)	COMPULSORY	See transition information
		MECH2430 Mechanics of Solids 1	COMPULSORY	See transition information
		MENG3800 Medical Engineering Research	CORE	
YEAR 4	SEMESTER 1	ENGG3500 Managing Engineering Projects	CORE	
		MECH2110 Mechanical Engineering Design 1	COMPULSORY	
		MENG3500 Medical Regulations	CORE	See transition information
		MECH4410 Mechanics of Solids 2 & FEA	COMPULSORY	See transition information
YEAR 4	SEMESTER 2	ENGG2440 Modelling and Control	COMPULSORY	
		ENGG2500 Sustainable Engineering Practice	CORE	In 2021 changed from Sem 1 to Sem 2
		ENGG4500 Engineering Complexity	CORE	
		MENG4800A Medical Engineering Project A	CORE	
YEAR 5	SEMESTER 1	ELECTIVE* 2000 level or higher	ELECTIVE	
		MENG3100 Biomaterials & Fluid Dynamics	COMPULSORY	See transition information
		MENG4800B Medical Engineering Project B <i>This course must be taken following MENG4800A (20 units)</i>	CORE	

COMPULSORY PROFESSIONAL PRACTICE: INDUSTRIAL EXPERIENCE 12 WEEKS

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## PROGRAM PLAN

# BACHELOR OF MEDICAL ENGINEERING (HONOURS)

## Medical Biomechanics Major

### Transition Information - for students who commenced study in Semester 2 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:

**CIVL1100**

**ELEC1310**

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:

**CHEM1010**

**HUBS2206**

**MECH3780**

**PHYS1210**

**MECH2360**

**MECH3110**

**HUBS2103**

**MECH3400**

**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 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 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.

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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

Commenced Study in Semester 2 2019

Year	Semester	Course	Category	Status
YEAR 1	SEMESTER 1	ENGG1003 Introduction to Procedural Programming	CORE	✓
		ENGG1500 Introduction to Professional Engineering	CORE	✓
		HUBS1401 Human Bioscience	DIRECTED	✓
		MATH1120 Mathematics for Engineering, Science and Technology 2	CORE	✓
	SEMESTER 2	CIVL1100 Fundamentals of Engineering Mechanics	COMPULSORY	✓
		ELEC1310 Introduction to Electrical Engineering	COMPULSORY	✓
		HUBS1420 Terminology and Communication in Biomedicine	DIRECTED	✓
		MATH1110 Mathematics for Engineering, Science and Technology 1	CORE	✓
YEAR 2	SEMESTER 1	HUBS1105 Musculoskeletal Anatomy	DIRECTED	✓
		MECH1110 Introduction to Mechanical Engineering Design	COMPULSORY	✓
		MECH2110 Mechanical Engineering Design 1	COMPULSORY	✓
		MECH2360 Dynamics of Machines	COMPULSORY	✓
	SEMESTER 2	ELECTIVE 2000 level or higher	ELECTIVE	✓
		ENGG2500 Sustainable Engineering Practice	CORE	✓
		MATH2310 Calculus of Science & Engineering	CORE	✓
		PHYS1210 Advanced Physics I	COMPULSORY	✓
YEAR 3	SEMESTER 1	ENGG3500 Managing Engineering Projects	CORE	
		ENGG2100 Engineering Risk and Uncertainty	COMPULSORY	
		EXSS2020 Biomechanics	COMPULSORY	
		MENG3100 Biomaterials & Fluid Dynamics	COMPULSORY	
	SEMESTER 2	ENGG2300 Engineering Fluid Mechanics	COMPULSORY	
		MECH2430 Mechanics of Solids 1	COMPULSORY	
		MENG3500 Medical Regulations	CORE	
		MENG3800 Medical Engineering Research	CORE	
YEAR 4	SEMESTER 1	MENG4100 Implants & Assistive Technologies	COMPULSORY	
		MECH4410 Mechanics of Solids 2 & FEA	COMPULSORY	
		MENG4800B Medical Engineering Project B	CORE	
		MENG4800A Medical Engineering Project A	CORE	
	SEMESTER 2	ENGG2440 Modelling and Control	COMPULSORY	
		EXSS3060 Advanced Biomechanics	COMPULSORY	
		ENGG4500 Engineering Complexity	CORE	
		MENG4800A Medical Engineering Project A	CORE	
YEAR 5	SEMESTER 1	MENG4800B Medical Engineering Project B	CORE	

COMPULSORY PROFESSIONAL PRACTICE: INDUSTRIAL EXPERIENCE 12 WEEKS

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### Transition Information - for students who commenced study in Semester 2 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:

**CIVL1100**

**PHYS1210**

**ELEC1310**

**MECH2360**

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:

**CHEM1010**

**MECH3780**

**HUBS2206**

**MECH3400**

**HUBS2103**

**MECH3110**

**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.

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**From 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.

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Commenced Study in Semester 2 2018

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

- Core and Major Compulsory courses – minimum of 270 units
- Directed courses – 30 units.
- Electives – maximum of 20 units.

Year	Semester	Course	Category	Status
YEAR 1	SEMESTER 1	<b>CIVL1100</b> Fundamentals of Engineering Mechanics	COMPULSORY	✓
		<b>ELEC1310</b> Introduction to Electrical Engineering	COMPULSORY	✓
YEAR 1	SEMESTER 2	<b>HUBS1420</b> Terminology and Communication in Biomedicine	DIRECTED	✓
		<b>MATH1110</b> Mathematics for Engineering, Science and Technology 1	CORE	✓
YEAR 2	SEMESTER 1	<b>ENGG1003</b> Introduction to Procedural Programming	CORE	✓
		<b>ENGG1500</b> Introduction to Professional Engineering	CORE	✓
		<b>HUBS1401</b> Human Bioscience	CORE	✓
		<b>MATH1120</b> Mathematics for Engineering, Science and Technology 2	CORE	✓
YEAR 2	SEMESTER 2	<b>ELECTIVE*</b> 2000 level or higher	ELECTIVE	✓
		<b>ENGG2500</b> Sustainable Engineering Practice	CORE	✓
		<b>MATH2310</b> Calculus of Science & Engineering	CORE	✓
		<b>PHYS1210</b> Advanced Physics I	COMPULSORY	✓
YEAR 3	SEMESTER 1	<b>HUBS1105</b> Musculoskeletal Anatomy	DIRECTED	✓
		<b>MECH1110</b> Introduction to Mechanical Engineering Design	COMPULSORY	✓
		<b>MECH2110</b> Mechanical Engineering Design 1	COMPULSORY	✓
		<b>MECH2360</b> Dynamics of Machines	COMPULSORY	✓
YEAR 3	SEMESTER 2	<b>ENGG2300</b> Engineering Fluid Mechanics	COMPULSORY	✓
		<b>ENGG2440</b> Modelling and Control	COMPULSORY	✓
		<b>HUBS2103</b> Neural and Visceral Anatomy	CORE	✓
		<b>MENG3800</b> Medical Engineering Research	CORE	✓
YEAR 4	SEMESTER 1	<b>CHEM1010</b> Introductory Chemistry I	CORE	✓
		<b>ELECTIVE*</b> 2000 level or higher	ELECTIVE	✓
		<b>ENGG3500</b> Managing Engineering Projects	CORE	✓
		<b>MECH3400</b> Materials Science and Engineering 2	COMPULSORY	✓
YEAR 4	SEMESTER 2	<b>MECH2430</b> Mechanics of Solids 1	COMPULSORY	✓
		<b>MENG3500</b> Medical Regulations	CORE	✓
		<b>ENGG4500</b> Engineering Complexity	CORE	✓
		<b>MENG4800A</b> Medical Engineering Project A	CORE	✓
YEAR 5	SEMESTER 1	<b>MENG3100</b> Biomaterials & Fluid Dynamics	COMPULSORY	✓
		<b>MECH4410</b> Mechanics of Solids 2 & FEA	COMPULSORY	✓
		<b>MENG4800B</b> Medical Engineering Project B <i>This course must be taken following MENG4800A (20 units)</i>	CORE	✓

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**CHEM1010**                      **CIVL1100**                      **PHYS1210**                      **ELEC1310**                      **20 units of Electives**  
**MECH2360**                      **HUBS2103**                      **MECH3400**

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**HUBS2206**                      **MECH3780**                      **MECH3110**                      **MECH3720**                      **20 units of Electives**

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