This list is for undergrad and masters coursework thesis projects.

Keep in mind some supervisors only list one general area but have several projects, while others have listed lots, but will only take a few students.

REMINDER: ALL students must have a biomed related project, and must have a biomed supervisor or co-supervisor.

Some schools have other arrangements/requirements, please see Penny Martens with any questions (p.martens@unsw.edu.au)

Project Title	**Supervisor**	**Co-supervisor**	**Suited for:**
CAD Modelling of Anatomical Surfaces	Socrates Dokos		Comp, Tele, Elec, Soft
Modelling Cardiac Pacemaker Electrical Activity	Socrates Dokos		Comp, Tele, Elec, Soft
3D Mesh Visualization for Anatomical Surfaces	Socrates Dokos		Comp, Tele, Elec, Soft
Large-Scale Parameter Optimization of Biological Models	Socrates Dokos		Comp, Tele, Elec, Soft
A Computer Model of the ECG	Socrates Dokos		Comp, Tele, Elec, Soft
Development of a CellML Editor for Biological Models	Socrates Dokos		Comp, Tele, Elec, Soft
Computer Simulation of Cardiac Defibrillation	Socrates Dokos		Comp, Tele, Elec, Soft
Classification of Forearm EMG signals for Prosthetic Control	Socrates Dokos, Stephen Redmond	Hong-Bo Xie	Comp, Tele, Elec, Soft
The chitosan bandage - a potent mediator of wound healing	Brooke Farrugia	Megan Lord	Chemical, Materials
Living electrodes: Tissue engineered conductive hydrogels	Rylie Green	Laura Poole-Warren, Penny Martens	Any, Chemical, Mechanical, Materials, Biomedical
Bionic eye electrode coating technologies for high resolution implants	Rylie Green	Laura Poole-Warren, Nigel Lovell	Any, Chemical, Mechanical, Materials, Biomedical, Electrical
Finite element analysis of prosthetic running blades exposed to physiological loading conditions	Lauren Kark	Gangadhara Prusty (Mech Eng), Anne Simmons (Mech Eng)	Mechanical, Mechatronic
Design and evaluation of the interface between prosthetic foot and pylon for amputee sprinting	Lauren Kark	Anne Simmons (Mech Eng)	Mechanical, Mechatronic
Simulating prosthesis behaviour during amputee sprinting using OpenSim	Lauren Kark	Anne Simmons (Mech Eng)	Any
Optimal walkway length to assess gait dynamics	Lauren Kark		Mechanical, Mechatronic
Development of a methodology to assess the ankle syndesmosis using motion capture technologies	Lauren Kark		Mechanical, Mechatronic, Electrical, CSE
Examination into the feasibility of using waist-mounted accelerometry to extract gait kinematics	Lauren Kark	Stephen Redmond	Mechanical, Mechatronic, Electrical, CSE

Project Title	Supervisor	Co-supervisor	Suited for:
Centre of mass evaluation using three techniques: an assessment into the suitability of waist-mounted accelerometry	Lauren Kark	Stephen Redmond	Mechanical, Mechatronic, Electrical, CSE
Development of diagnostic markers of disease	Megan Lord	John Whitelock	Chemical, Materials
Therapeutic bioactive nanoparticles	Megan Lord	Brooke Farrugia, John Whitelock	Chemical, Materials
Polymeric nanoparticles for controlled drug delivery	Megan Lord	Martina Stenzel (Chem Eng), Brooke Farrugia	Chemical, Materials
Understanding the nano-bio interface for long term implants	Megan Lord	Brooke Farrugia, John Whitelock	Materials, Chemical, Mechanical
Polymer-Graphene Microparticles for tissue regeneration	Megan Lord	Stuart Thickett (Chem Eng), Brooke Farrugia	Chemical, Materials
Falls detection system with audio feedback	Nigel Lovell	Stephen Redmond	Electrical, Mechatronics, Telecommunications, Computer, Software, Bioinformatics
Real time movement and falls classification system	Nigel Lovell	Stephen Redmond	Telecommunications, Computer,
Optimising electrical waveforms for electroporation	Nigel Lovell	Rylie Green, Gary Housley (SOMS)	
Smartphone App for blood pressure estimation using photoplethysmography	Nigel Lovell	Stephen Redmond, Chris Hayward (St Vincents)	Electrical, Computer, Software, Bioinformatics
Patterned roughening of platinum electrodes for improving charge injection during electrical stimulation	Rylie Green	Nigel Lovell	Chemical, Mechatronics, Materials, Electrical
Curing Diabetes: Designing, Creating, and Characterising Biosynthetic Hydrogel Cell Carriers	Penny Martens	Laura Poole-Warren	Any, Chemical, Mechanical, Materials, Biomedical
Neuroprosthetic Coatings: Conducting Polymer Hydrogels, creating softer electrodes	Penny Martens, Rylie Green	Laura Poole-Warren	Any, Chemical, Mechanical, Materials, Biomedical, Electrical
Soft Tissue Engineering: Fundamental polymer design and characterisation.	Penny Martens	Laura Poole-Warren	Any, Chemical, Mechanical, Materials, Biomedical
Curing Neuroblastomas: Development of hydrogel cell carriers for in vitro testing	Penny Martens	Sharon Sagnella (CCIA)	Any, Chemical, Mechanical, Materials, Biomedical
New Mussel-inspired polymer materials for drug delivery devices	Penny Martens, Tony Granville (ChemEng)		Any, Chemical, Mechanical, Materials, Biomedical
Polymer coatings for biosensor devices as an alternative to ELISA assays	Penny Martens, Tony Granville (ChemEng)		Any, Chemical, Mechanical, Materials, Biomedical
Adding sugar structures to biomaterials to guide cell responses	Penny Martens	John Whitelock	Chemical, Mechanical

Project Title	Supervisor	Co-supervisor	Suited for:
Advantages and feasibility of an ultra low-cost prosthetic hand for developing countries	Paul Matteucci	Gregg Suaning, Lauren Kark	Electrical, Mechatronic, Mechanical, Biomedical
The Bionic Eye: Depth mapping and edge detection in prosthetic vision using Microsoft Kinect (http://goo.gl/Fpyrc)	Paul Matteucci	Gregg Suaning	Software / Mechatronic Engineer
The Bionic Eye: Psychophysics navigation platform using the Crytek 3 engine (http://goo.gl/Fpyrc)	Paul Matteucci	Gregg Suaning	Software / Mechatronic Engineer
The Bionic Eye: Android portable vision processor (http://goo.gl/Fpyrc)	Paul Matteucci	Gregg Suaning	Software / Mechatronic Engineer
Mapping and modeling stem cell growth and development using the ONIX™ Microfluidic Perfusion Platform	Robert Nordon	Richard Harvey (VCCRI)	Mechanical, Chemical
Cell migration over gradient surfaces using the ONIX™ Microfluidic Perfusion Platform	Robert Nordon	Clive McFarland	Mechanical Chemical Engineering
Development of cell analysis software for the ONIX™ Microfluidic Perfusion Platform	Robert Nordon	Stephen Redmond	Bioinformatics, Electrical Engineering and Telecomunication, Computer Science and Engineering
Design and fabrication of microneedle arrays for painless blood collection	Robert Nordon	Graham Davies (Engineering)	Mechanical and Manufacturing, Chemical
Development of a single molecule microfluidic biosensor	Robert Nordon	Clive McFarland	Chemical
Bioactive Polymers: Engineering material-tissue interfaces for biomedical devices	Laura Poole-Warren	Rylie Green, Penny Martens	Any, Chemical, Mechanical, Materials, Electrical, Biomedical
Unobtrusively detecting falls at night time	Stephen Redmond	Nigel Lovell	Electrical, Telecommunications, Computer, Software
Hardware and algorithm development for signal quality estimation in telehealth recordings	Stephen Redmond	Nigel Lovell	Electrical, Telecommunications, Computer, Software, Mechatronic,
Using inertial sensors to monitor respiration during sleep	Stephen Redmond	Nigel Lovell	Electrical, Telecommunications, Computer, Software, Mechatronic,
Understanding the biomechanics of the human fingertip when grasping objects of different frictional properties, and why this allows us to sense slippiness	Stephen Redmond	Ingvars Birznieks (UWS), Heba Khamis	Electrical, Mechanical, Telecommunications, Computer, Software, Mechatronic, Mechanical
Using inertial sensors to detect foetal movement	Stephen Redmond	Michael Narayanan	Electrical, Telecommunications, Computer, Software, Mechatronic

Project Title	Supervisor	Co-supervisor	Suited for:
Investigation of Silicone adhesion to ceramic *in collaboration with Cochlear Limited*	Gregg Suaning	Mike Skalsky/Martin Svehla (Cochlear Ltd)	Chemical/Materials Engineering
Impact resistance of cochlear implant headsets *in collaboration with Cochlear Limited*	Gregg Suaning	Roger Leigh(Cochlear Ltd)	Mechatronic/Mechanical Engineering
Toroidal magnets in cochlear implants for improved MRI compatibility *in collaboration with Cochlear Limited*	Gregg Suaning	Roger Leigh(Cochlear Ltd)	Mechanical/Mechatronic/Electrical Engineering
Three degree of freedom, automated test system for radio telemetry assessment in implantable bionics	Gregg Suaning	Louis Jung	Mechatronic/Electrical Engineering
Automated Measurement System for high-density feedthrough continuity in implantable bionics	Gregg Suaning	Christopher Dodds	Mechatronic/Electrical
Bioinformatic development of markers of disease	John Whitelock	Megan Lord	Bioinformatics
Bioreactor manufacturing of bio-actives eg. antibodies and anticoagulants	John Whitelock	Megan Lord	Chemical, Mechanical, Materials
The neural - synaptic interface; extracellular matrix promoting electrical conductivity in the brain	John Whitelock	Megan Lord	Electrical, Materials, Chemical
Effects of tissue microstructure on tissue mechanical properties using MR elastography	Lynne Bilston	Rylie Green, Ross Odell	Biomed/Mech
Effect of gliosis on spinal cord mechanical properties in syringomyelia	Lynne Bilston	Rylie Green	Biomed/Mech
Measuring the spinal cord mechanical properties in vivo	Lynne Bilston		Biomed/Mech or Biomed/Elec
Investigating tissue elasticity changes in children and adolescents using MRI?	Lynne Bilston		Biomed/Mech
CFD model of a patient-specific arteriovenous fistula stenosis	Tracie Barber (Mech Eng)	Socrates Dokos	Any, Mechanical, Mechatronic, Computer, Biomedical
The effect of surface roughness on stenosis growth (CFD model)	Tracie Barber (Mech Eng)	Socrates Dokos	Any, Mechanical, Mechatronic, Computer, Biomedical
3D CFD model of the aorta-renal ostium and implications for drug eluting stents	Tracie Barber (Mech Eng)	Lauren Kark	Any, Mechanical, Mechatronic, Computer, Biomedical
Development of an ultrasound phantom for 3D perfusion analysis	Tracie Barber (Mech Eng)	Socrates Dokos	Any, Mechanical, Mechatronic, Computer, Biomedical
Flow-mediated damage caused by needle access: Cell study.	Tracie Barber (Mech Eng)	Megan Lord	Any, Mechanical, Mechatronic, Computer, Biomedical

Project Title	Supervisor	Co-supervisor	Suited for:
Laser Induced Hyperthermia of Superficial Tumors with Nanoparticles	Victoria Timchenko (Mech Eng)	Ross Odell	Any, Mechanical, Mechatronic, Computer, Biomedical
Non-invasive Treatment of Tumours using Radiofrequency Electric Current Activation	Victoria Timchenko (Mech Eng)	Socrates Dokos	Any, Mechanical, Mechatronic, Computer, Biomedical
Magnetic Drug Targeting (MDT) for cancer treatment	Victoria Timchenko (Mech Eng)	Socrates Dokos, Guan Yeoh (Mech Eng)	Any, Mechanical, Mechatronic, Computer, Biomedical