

# **Caspian International University**

## **Appendix 1**

Detailed Information on:

- A. Software Engineering
- B. Civil Engineering
- C. Electronics and Computer Systems Engineering
- D. Mechanical Engineering

### **Appendix to Submission to**

**Swinburne University of Technology Australia**

**for the**

**Approval of Credit Transfer Programs**

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## **Introduction**

The following sections contain detailed information on each of the specific programs submitted for approval by SUT. Programs include:

- A. Software Engineering
- B. Civil Engineering
- C. Electronics and Computer Systems Engineering
- D. Mechanical Engineering

## **Section A: Bachelor of Software Engineering**

### **A1. General Information**

#### **A1.1. Program title**

Bachelor of Software Engineering

#### **A1.2. Degrees awarded on completion and abbreviations**

Bachelor of Software Engineering U4001 (BSE)

#### **A1.3. University awarding degrees**

Caspian International University-Jolfa (CIUJ) or  
Swinburne University of Technology {Under Credit Transfer agreement}

#### **A1.4. Any subsets or variants : Nil**

#### **A1.5. Level of approval sought**

Two plus Two Credit Transfer Programs

### **A2. Program Objectives**

#### **A2.1. Educational objectives for the programs**

The Bachelor of Software Engineering (BSE) is an innovative and challenging course that provides graduates with substantial advanced skills. The course allows students to situate that knowledge soundly within an appreciation of the broader, traditional engineering disciplines.

The course focuses on the object-oriented approach to software development, accepted by industry as a key technology for the future. It provides an extensive education in contemporary approaches to the analysis, design and implementation of large-scale systems, along with a sound understanding of the traditional aspects of computer science such as hardware and operating systems. There is also a focus on applications involving multi-media, and on web-based systems, with an emphasis on the design of effective

human-computer interaction.

At the final stages of the course at SUT,

The selection of electives allows students to explore specialist areas of computer science/software engineering at an advanced level. The incorporation of an engineering minor ensures that the students are also able to enhance their engineering knowledge in core engineering disciplines.

A range of options in the final year of the course at SUT allows students to study advanced subjects in areas such as computer networks, database, knowledge-based systems and human-computer interaction. The acquired skills and knowledge are consolidated in a major team project for an external client in the final year .

Graduates will be well equipped to meet the predicted growth in industry demand for professionals in information technology, made possible by an explosion of digital media content, a transition from professional to mass consumer markets, and international trading of new information products on a scale comparable to that in traditional manufactured goods. Graduates will have extensive skills in software development, particularly relating to medium and large scale projects. They will also have experience in working on team projects, and will have well-developed oral and written communication skills.

**Graduates will possess:**

- \* Knowledge of the fundamentals of Mathematics, Computer Science and Physics, which constitute the academic underpinnings of the Software Engineering discipline.
- \* Knowledge of the methods (the management principles underpinning analysis, design, implementation and maintenance), techniques (approaches and notations) and tools (software engineering environments) of contemporary Software Engineering.
- \* Skills in situating knowledge obtained within the core engineering disciplines.
- \* Advanced skills in management of resources and technology, as required of an engineering professional.
- \* The skills necessary for working in a software development team on a large scale project.
- \* A deep understanding of the process of software development.
- \* Skills in the object-oriented approach to systems analysis, design and implementation.
- \* High-level skills in developing software in Java and C++.
- \* The communication and management skills required to manage software development projects successfully.
- \* An understanding of the social, legal and ethical issues confronting the software engineering professional.

\* Knowledge and experience in human-computer interaction, knowledge-based systems, database systems and data communications.

### **A3. Program Structure**

#### **A3.1. Program structure**

Total student contact hours, including lectures, classes, tutorials and laboratory sessions, will be approximately twelve to sixteen hours per week during the academic semesters. In each practical subject, students will be expected to spend three or four hours per week in unsupervised laboratories or using a home computer in addition to formal class time.

Students must take at least twelve weeks of relevant industry experience prior to graduation.

### A3.1 Course Subjects

Academic Semester	SUT Subject Code	SUT Subject Name	CIUJ Subject Code	CIUJ Subject Name
Semester A1	HIT1015	Computer Systems	UI4111	Computer Systems
	HIT1151	Software Development 1	UI4112	Object Oriented Programing
	HIT2016	Database 1	UI4113	Database 1
	HMS111	Engineering Mathematics 1	UG1111	Foundation Mathematics 1
Semester A2	HIT1031	Introduction to Software Engineering	UI4121	Introduction to Software Engineering
	HIT 1152	Software Development 2A	UI4122	JAVA Programing
	HIT182	Electronic Systems	UI4123	Electronic Systems
	HMS112	Engineering Mathematics 2	UG0122	Foundation Mathematics 2
Semester A3	HIT2024	Introduction to Human-Computer Interaction	UI4211	Introduction to Human-Computer Interaction
	HIT2056	Software Project Management	UI4212	Software Project Management
	HIT2253	Data Structures and Algorithms	UI4213	Data Structures and Algorithms
	HMS213	Engineering Mathematics 3B	UG0213	Engineering Mathematics 3
Semester A4	HIT2114	Operating Systems(Linux)	UI4221	Operating Systems(Linux)
	HIT3054	C++ for JAVA Programmers	UI4222	C++ for JAVA Programmers
	HIT3041	Advanced Web Development	UI4223	Advanced Web Development
	HMS214	Engineering mathematics 4B	UG0411	Engineering mathematics 4B

The third and fourth years can be completed at SUT according to SUT educational structure.

Students may also continue their studies at CIUJ, according to a structure that will be progressively developed. For the time being it should be assumed that the same SUT program, below, will be followed at CIUJ with some minor modifications.

Semester A5	HIT0004	Careers in the curriculum	HIT0004	Careers in the curriculum
	HIT2120	Data Communications & Security	HIT2120	Data Communications & Security
	HIT3017	Database 2	HIT3017	Database 2
	HIT3047	Real _ Time Programming	Real _ Time Programming	Real _ Time Programming
Semester A6	HIT3055	Software Maintenance Project	Software Maintenance Project	Software Maintenance Project
	HIT 3057	Software Testing and Reliability	HIT 3057	Software Testing and Reliability
	HIT 3149	Analysis Modelling & Design	HIT 3149	Analysis Modelling & Design
Semester A7	HIT 3157	Large Scale System Design	HIT 3157	Large Scale System Design
	HIT 4058	Software Engineering Project A	HIT 4058	Software Engineering Project A
Semester A8	HIT 3044	Professional issues in Information Technology	HIT 3044	Professional issues in Information Technology
	HIT4058	Software Engineering Project A	HIT4058	Software Engineering Project A

### **Modes of Entry**

Students enter this program through a special entrance program conducted by CIUJ at specified dates to be announced each year. Students who need to improve their English to the required level will be allocated an intensive English training program prior to start of their main studies.

#### **A4. Educational Process**

##### **A4.1. How the program imparts each of the generic graduate attributes**

The Bachelor of software Engineering (BSE) is designed to produce graduates who have the necessary knowledge, technical skills and generic skills to carry out the design, management, construction and maintenance of software systems as well as preparing graduates for research.

#### **A5. Assessment**

##### **A5.1. Approach taken to assessment**

Students are assessed using a range of methods including examination, oral presentation, in-class tests, laboratory reports, project work, and written assignments and reports.

#### **A6. Quality Systems**

To be developed. Meanwhile CIUJ will closely follow SUT guidelines.

## **Section B: Bachelor of Engineering (Civil Engineering)**

### **B1. General Information**

#### **B1.1. Program title**

Bachelor of Engineering (Civil Engineering)

#### **B1.2. Degrees awarded on completion and abbreviations**

Bachelor of Engineering (Civil Engineering) U1001

BEng (Civil Engineering)

#### **B1.3. University awarding degrees**

Caspian International University-Jolfa (CIUJ) or  
Swinburne University of Technology { Under Credit Transfer agreement }

#### **B1.4. Any subsets or variants :**

Nil

#### **B1.5. Level of approval sought**

Two plus Two Credit Transfer

### **B2. Program Objectives**

#### **B2.1. Educational objectives for the programs**

Civil Engineering degree program is designed to prepare students for the profession of Engineering through an ordered course of four academic years and a minimum of 12 weeks of professional experience.

The Bachelor of Engineering (Civil Engineering) program endeavours to incorporate appropriate graduate employability skills, developments in information technology, society's changing work patterns and the need to meet "world best practice" in engineering education.

The Civil Engineering Degree program endeavors to equip the next generation of graduates for professional practice

### **B3. Program Structure**

#### **B3.1. Program structure**

This course operates under a student workload model based on 100 credit points for a full-time academic year, Total student contact hours, including lectures, classes, tutorials, laboratory and field sessions, are approximately 18 to 20 hours per week during academic semesters. The remaining hours are expected to consist of self study and working on projects, assignments and designs.

The learning environment ranges from basic practical experiences in laboratories, through assignment work involving library and Internet searches, excursions to industry sites, to sophisticated simulation experiences and the use of advanced computer software. Through project work, industry visits, and the learning environment extends well beyond the campus and into the arena of professional practice. Within the industrial setting students have to learn to communicate effectively with professional, technical and lay personnel.

Industry based project work and problem-based learning motivates students to learn for themselves whatever theory or skills are necessary for the successful completion of the project. This development of self-management and self-learning skills lays the foundation for life-long learning.

#### **Bachelor of Engineering (Civil Engineering)**

The subjects making up the academic component of the degree program can be classified into First Year, Intermediate Studies and Advanced Studies. Students have to also obtain at least twelve weeks of relevant professional experience.

First year comprises of academic semesters A1 and A2, which consist of a pool of introductory subjects common to many engineering disciplines. Intermediate studies typically occur in academic semester A3 to A5, which are undertaken by all Civil Engineering students. This and the industry experience provide basic and some specialist knowledge in Civil Engineering that prepares students for professional employment. Advanced studies occur in academic semesters A6 to A8 and include advanced specialist Civil Engineering studies with some electives. The latter part will be done at SUT upon this agreement.

#### **B3.2 Modes of Entry**

The most common mode of entry into the Bachelor of Engineering (Civil Engineering) is through a special entrance program conducted by CIUJ at specified dates to be announced each year.

Students needing to improve their English to the required level will be allocated to an intensive English training program before starting their main studies.

### B3.3. List of all subjects and other education experiences offered

**Table B1: Course Structure for the Bachelor of Engineering (Civil Engineering)**

Academic Semester	SUT Subject Code	SUT Subject Name	CIUJ Subject Code	CIUJ Subject Name
Semester A1	HEF1000	Professional Engineering	UC1101	Introduction to Engineering Profession
	HES1125	Mechanics of Structures	UC1102	Mechanics of Structures
	HET124	Energy and Motion	UG0112	Physics of Energy and Motion
	HMS111	Engineering Mathematics 1	UG1111	Fundamentals of Mathematics 1
Semester A2	HES1105	Civil Engineering Project	UC1121	Project 1
	HES1230	Materials and Processes	UC1123	Materials and Processes
	HET182	Electronic Systems	UG0123	Electronic Systems
	HMS112	Engineering Mathematics 2	UG0122	Fundamentals of Mathematics 2
Semester A3	HES2120	Structural Mechanics	UC1211	Structural Mechanics
	HES2131	Topographical Engineering	UC1212	Surveying and Analysis
	HES2146	Computer Aided Engineering 1	UG0212	Computer Aided Engineering 1
	HMS215	Engineering Mathematics 3C	UG0211	Engineering Mathematics 4B
Semester A4	HES2125	Design of Concrete Structures	UC1221	Concrete Structures Design and Technology
	HES2136	Road Engineering	UC1222	Road Engineering
	HES2155	Geomechanics	UC1223	Geomechanics
	HES2340	Fluid Mechanics	UC1224	Fluid Mechanics

The third and fourth years will be at SUT according to SUT structure .

Students who do not continue at SUT will continue their studies at CIUJ according to a structure that will be further developed as time progresses. For the time being it should be

assumed that the same SUT program, below, will be followed with some minor modifications similar to the changes done to the first two years subjects.

Semester A5	HES3111	Urban Civil Design	HES3111	Urban Civil Design
	HES3121	Design of Steel Structures	HES3121	Design of Steel Structures
	HES3150	Geotechnical Engineering	HES3150	Geotechnical Engineering
	HES3380	Engineering Management 1	HES3380	Engineering Management 1
Semester A6	HES4126	Structural Engineering	HES4126	Structural Engineering
	HES4136	Transport Engineering	HES4136	Transport Engineering
	HES4146	Water and Environmental Engineering	HES4146	Water and Environmental Engineering
	HES5175	Cost Engineering	HES5175	Cost Engineering
Semester A7	HES5190	Infrastructure Design Project	HES5190	Infrastructure Design Project
	HES5191	Infrastructure Deterioration and Asses.	HES5191	Infrastructure Deterioration and Asses.
	HES5380	Engineering Management 2	HES5380	Engineering Management 2
	Approved Elective		Approved Elective	
Semester A8	HES5106	Research Project	HES5106	Research Project
	HES5195	Infrastructure Management Project	HES5195	Infrastructure Management Project
	HES5385	Engineering Management 3	HES5385	Engineering Management 3
		Approved Elective		Approved Elective

## **B4. Educational Process**

### **B4.1. How the program imparts each of the generic graduate attributes**

The Bachelor of Engineering (Civil Engineering) is designed to produce graduates who have the necessary knowledge, technical skills and generic skills to carry out the design, management, construction and maintenance of: concrete structures, steel structures, masonry structures, timber structures, various geotechnical structures, roads, rail systems, water supply systems, drainage systems, water and environmental facilities, as well as preparing graduates for research.

## **B5. Assessment**

### **B5.1. Approach taken to assessment**

Students are assessed using a range of methods including examination, oral presentation, in-class tests, laboratory reports, project work, and written assignments and reports.

## **B6. Quality Systems**

To be developed. Meanwhile CIUJ will closely follow SUT guidelines.

## **Section C: Bachelor of Engineering (Electronics and Computer Systems)**

### **C1. General Information**

#### **C1.1. Program title**

Bachelor of Engineering (Electronics and Computer Systems)

#### **C1.2. Degree awarded on completion and abbreviations**

Bachelor of Engineering (Electronics and Computer Systems) U2000

BEng (Electronics and Computer Systems)

#### **C1.3. University awarding the degrees**

Caspian International University – Jolfa (CIUJ) or  
Swinburne University of Technology

#### **C1.4. Any sub-sets or variants**

Nil

#### **C1.5. Level of approval sought**

Two plus Two Credit Transfer.

#### **C1.6. Year of first introduction of the program**

2005

### **C2. Program Objectives**

#### **C2.1. Educational Objectives for the Program**

Electronics and computer systems engineering prepares graduates for professions characterized by the growth of new technologies and new opportunities. This course provides professional career opportunities in a range of dynamic high-technology areas including the overlapping fields of computer hardware and software, telecommunications, electronics and computer systems.

This course is structured to develop students' abilities to analyse, identify, formulate and generate specific solutions in electronics, computer systems engineering and related fields by means of simulating, designing and conducting experiments, developing prototype solutions and testing the final product.

**The course has the following objectives:**

- To develop in students a mastery of a wide spectrum of basic engineering principles underlying electronics and computer systems engineering;
- To develop in students a thorough understanding of a broad range of engineering methods and techniques, and competence in their application, so that students are able to comprehend and analyse problems and obtain satisfactory design solutions which, where appropriate, show originality and resourcefulness;
- To develop students' communication skills so that they can present their ideas clearly by verbal, written and graphical mean in English and their native languages.
- To give students an appropriate introduction to the role of the professional engineer in the community and to explore the social effects of engineering decisions;
- To prepare students for the changing workplace and changing societal context of engineering by developing their life-long learning skills and flexibility of mind;

**C3. Program Structure**

**C3.1. Program structure**

This course operates under a student workload model based on 100 credit points for a full-time academic year. Total student contact hours, including lectures, classes, tutorials, laboratory and field sessions, will be approximately 22 hours/week during academic semesters.

In general, students choose subjects from Subject Groups, giving students more flexibility in the planning of their programs and fields of specialization. This also facilitates course planning for students who take part in Credit Transfer program. The relevant Course Panel has the authority to approve additional elective studies for particular students.

### **C3.2. Modes of Entry**

Students enter this program through a special entrance program conducted by CIUJ at specified dates to be announced each year. Students who need to improve their English to the required level will be allocated an intensive English training program prior to start of their main studies.

### **C3.3. List of all subjects and other education experiences offered**

Bachelor of Engineering (Electronics and Computer Systems)

Students must choose subjects as indicated in Table C1, subject to timetable constraints and prerequisite studies being met.

**Table C1: Recommended Study Sequence:**

	Course Structure SUT equivalent		Course Structure at CIUJ	
Sem 1	HMS111	Engineering Mathematics 1	UG0111	Foundation Mathematics 1
	HET124	Energy & Motion	UG0112	Physics of Energy & Motion
	HIT1051	Software Development 1	UI4114	Object Oriented Programming Using Java
	HEF1000	Professional Engineering	UC1101	Introduction to Engineering Profession
Sem 2	HMS112	Engineering Mathematics 2	UG0122	Engineering Mathematics 2
	HIT1052	Software Development 2	UI4124	Software Development 2
	HET182	Electronic Systems	UG0123	Electronic Systems
	HET1005	Engineering Project	UE2122	Electrical Engineering Project
Sem 3	HMS213	Engineering Mathematics 3B	UG0213	Engineering Mathematics 3B
	HET314	Communications Principles	UE2211	Broadcasting
	HET202	Digital Electronics Design	UE2212	Digital Electronics Design
	HIT3072	C++ for Programmers	UI4214	Programming with C++
Sem 4	HMS214	Engineering Mathematics 4B	UG3211	Engineering Mathematics 4B
	HET214	Circuits & Electronics 1	UE2221	Basic Electronics
	HET232	Embedded Microcontrollers	UE2222	Embedded Microcontrollers
	HET329	Digital Signal & Image Processing	UE2223	Digital Signal & Image Processing

The third and fourth years will be at SUT according to SUT structure  
 Students who do not continue at SUT will continue their studies at CIUJ according to a structure that will be further developed as time progresses. For the time being it should be assumed that the same SUT program, below, will be followed with some minor modifications similar to the changes done to the first two years subjects.

Sem 5	HET308	Circuits & Electronics 2	HET308	Circuits & Electronics 2
	HET312	Control & Automation	HET312	Control & Automation
	HET316	Electromagnetic Waves	HET316	Electromagnetic Waves
	HET378	Integrated Circuit Design	HET378	Integrated Circuit Design
Sem6	HET416 Computer Systems Engineering Management and Business Studies (choose one) Technical/Specialist Technical E&CS Studies (choose two)*		HET416 Computer Systems Engineering Management and Business Studies (choose one) Technical/Specialist Technical E&CS Studies (choose two)*	
Sem7	HET550 Design & Development Project 1 HET513 Design of DSP Architectures Management and Business (choose one) Technical/Specialist Technical E&CS Studies (choose one)*		HET550 Design & Development Project 1 HET513 Design of DSP Architectures Management and Business (choose one) Technical/Specialist Technical E&CS Studies (choose one)*	
Sem8	HET556 Design & Development Project 2 HET515 Advanced Embedded Systems Management and Business Studies (choose one) Technical/Specialist Technical E&CS Studies (choose one)*		HET556 Design & Development Project 2 HET515 Advanced Embedded Systems Management and Business Studies (choose one) Technical/Specialist Technical E&CS Studies (choose one)*	

#### **C4. Approaches Taken To Learning And Teaching**

Teaching methods in this course involve predominantly face-to-face lectures, tutorials and laboratory sessions, plus online support via subject websites containing Subject Outlines, all relevant handouts, contact information, in-semester assessment results, subject feedback forums, and other discussion forums where appropriate. This course emphasize a practical approach to the development of engineering skills re-enforced by problem solving, practical and project work, and backed up by significant components of in-semester continual assessment and associated feedback.

The E&CS course emphasizes “guided” industry based projects, teamwork and critical thinking from the early stages of the program. In certain cases the students are encouraged to investigate alternative solutions on their own. In the later years the trend is to encourage the students to formulate solutions to more open-ended problems. The final year project is the capstone where all the acquired engineering skills and knowledge are potentially required to solve problems.

Student feedback is sought through face-to-face feedback sessions each semester, feedback discussion forums, student surveys and informal discussions between students and staff. As the result of student surveys, subject panels review subjects which fall below minimum levels for their ‘student satisfaction’ rating and report back to the Course Leader Committee, which can recommend further action to the Director – Education.

## **C5. Assessment**

### **C5.1. Approach taken to assessment**

Assessment is based on attendance, assignments, project, exam and presentations as specified for each specific program. CIUJ will follow SUT requirements unless otherwise specified. CIUJ students who continue to complete their degree at SUT will be subject to SUT rules.

### **C5.2. Processes to ensure meeting the requirements**

CIUJ will maintain a central record system and provide feedback to students’ progress. CIUJ students who continue to complete their degree at SUT will be subject to SUT rules.

## **C6. Quality system**

Monitoring of standards by program and Subject Panels and other relevant Committees and reviews of subjects in the response to student feedback. Quality control is the responsibility how the program leader, who advise the Education Director. CIUJ students who continue to complete their degree at SUT will be subject to SUT rules.

## **Section D: Bachelor of Engineering (Mechanical Engineering)**

### **D1. Program Information**

#### **D1.1. Program title**

Bachelor of Engineering (Mechanical Engineering) and associated Double Degree program.

#### **D1.2. Degree awarded on completion and abbreviations**

Bachelor of Engineering (Mechanical Engineering) U...

#### **D1.3. University awarding degrees**

CIUJ or Swinburne University of Technology

#### **D1.4. Any subsets or variants**

Nil

#### **D1.5. Level of approval sought**

Two Plus Two Credit Transfer

#### **D1.6. Year of first introduction of the program,**

### **D2. Program Objectives**

#### **D2.1. Educational objectives for the program**

The Bachelor of Engineering (Mechanical Engineering) program endeavours to incorporate appropriate graduate employability skills, developments in information technology, society's changing work patterns and the need to meet "world best practice" in engineering education.

The Mechanical Engineering Degree program endeavours to fully equip the next generation of graduates for professional practice by:

- Ensuring competency in all aspects of computer aided engineering; □□  
Developing greater social and employability skills;
- A first year which is specifically designed to be motivational and help students integrate into University life;
- The option of up to 12 months paid Industry Based Learning (IBL);
- Ensuring an understanding of the fundamentals of engineering and science;
- Ensuring the possession of appropriate technical skills to practice as a Mechanical Engineer;
- Ensuring competency in all aspects of computer aided engineering ;
- Demonstrating an ability to manage complex projects;
- Encouraging projects that are motivational, entrepreneurial, research &/or industry linked;
- Developing business and management skills and knowledge;
- Balancing teamwork and individual recognition;
- Developing greater social and employability skills;
- Developing a broader knowledge outside traditional engineering, especially with the social impact of technology;
- Providing greater assurance of quality for teaching and learning;
- Providing knowledge or skills that are demonstrably in demand by industry;
- Encouraging graduate outcomes that are entrepreneurial and/or research focused,
- Encouraging an international outlook through greater awareness and programs such as student exchange.

A major objective is to establish a learning environment that provides a climate that encourages students to conduct themselves in a caring, assertive and professionally competent manner.

### **D3. Program Structure**

#### **D3.1. Program structure**

This program operates under a student workload model based on 100 credit points for a full-time academic year. Total student contact hours, including lectures, classes, tutorials, laboratory and field sessions, are approximately 18 to 20 hours per week during academic semesters. The remaining hours are expected to consist of self study and working on projects, assignments and designs.

The learning environment ranges from basic practical experiences in laboratories, through assignment work involving library and Internet searches, excursions to industry sites, to sophisticated simulation experiences and the use of advanced computer software. Through project work, industry visits, and through Industry Based Learning, the learning environment extends well beyond the campus and into the arena of professional practice. Within the industrial setting students have to learn to communicate effectively with professional, technical and lay personnel.

The basic program structure for the Bachelor of Mechanical Engineering degrees is outlined below.

First year comprises of academic semesters A1 and A2, which consist of a pool of introductory subjects common to many engineering disciplines. Intermediate studies typically occur in academic semester A3 to A5, which are undertaken by all Mechanical Engineering students. This provides some specialist knowledge in Mechanical Engineering

Monitoring of standards by program and Subject Panels and other relevant Committees and reviews of subjects in the response to student feedback. Quality control is the responsibility how the program leader, who advise the Education Director. Students who complete their degree at SUT will be subjected to SUT rules.

### D3.3. List of all subjects and other education experiences offered

	SUT Subject Code	SUT Subject Name	CIUJ Subject Code	CIUJ Subject Name
Semester A1 First Year	HES1300	Robotics & Mechatronics Project 1	UM311	Programing & CAD Project
	HES1230	Materials and Processes	UC1123	Materials & Processes
	HET124	Energy and Motion	UG0112	Physics of Energy & Motion
	12.5 HMS111	Engineering Mathematics 1	UG1111	Foundation Mathematics 1
Semester A2 First Year	HES1305	Robotics & Mechatronics Project 2	UM3121	Electronic Communication Project
	HES1125	Mechanics of Structures	UC1102	Mechanics of Structures
	HET182	Electronic Systems	UG0123	Electronic Systems
	HMS112	Engineering Mathematics 2	UG0122	Foundation Mathematics 2
Semester A3 Second Year	HES2146	Computer Aided Engineering 1	UM3211	Computer Aided Design Modelling
	HES2120	Structural Mechanics	UC1211	Structural Mechanics
	HES2330	Thermodynamics 1	UM3212	Thermodynamics 1
	HMS211	Engineering Mathematics 3A	UG3211	Mathematics for Mechanical Engineering
Semester A4 Second Year	HES2230	Engineering Materials	UM3211	Computer Aided Design Modelling
	HES2310	Machine Dynamics 1	UM3212	Machine Dynamics 1
	HES2340	Fluid Mechanics 1	UC1224	Fluid Mechanics
	HES2280	Manufacturing Technology 1	UM3213	Manufacturing Processes

The third and fourth years will be at SUT according to SUT structure as follows:

Students who do not continue at SUT will continue their studies at CIUJ according to a structure that will be further developed as time progresses. For the time being it should be assumed that the same SUT program, below, will be followed with some minor modifications similar to the changes done to the first two years subjects.

Semester A5 Third Year	HES3350	Machine Design	HES3350	Machine Design
	HES3360	Human Factors	HES3360	Human Factors
	HES3310	Control Engineering	HES3310	Control Engineering
	HES3380	Engineering Management 1	HES3380	Engineering Management 1
Semester A6 Third Year	HES4350	Mechanical Systems Design	HES4350	Mechanical Systems Design
	HES5310	Machine Dynamics 2	HES5310	Machine Dynamics 2
	HES4330	Thermodynamics 2	HES4330	Thermodynamics 2
	HMS212	Engineering Mathematics 4A	HMS212	Engineering Mathematics 4A
Semester A7 Fourth Year	HES5350	Product Design	HES5350	Product Design
	HES5340	Fluid Mechanics 2	HES5340	Fluid Mechanics 2
	HES5380	Engineering Management 2	HES5380	Engineering Management 2
		Approved Elective		Approved Elective
Semester A8 Fourth Year	HES5106	Research Project	HES5106	Research Project
	HES5320	Solid Mechanics	HES5320	Solid Mechanics
	HES5385	Engineering Management 3	HES5385	Engineering Management 3
		Approved Elective		Approved Elective
		Total credit points 400		Total credit points 400
		TOTAL IEAust % (Credit points)		TOTAL IEAust % (Credit points)

### **D3.6. Exposure to professional engineering practice**

Mechanical Engineering students are exposed to professional engineering practice throughout their program, beginning in Year 1. In year 1 of the program, Robotics and Mechatronics Project 2 has a large component that involves design and construction of a programmable robot and participation in an in-house robot competition. The finalist then competes with other universities. In addition, students spend at least 40 hours at learning how to use lathes for machining and fabrication of components, and joining of metals such as brazing and welding. Through these early experiences students learn about design, manufacture and testing as they relate to engineering practice.

### **D4. Approaches taken to learning and teaching**

Teaching methods in this course involve predominantly face-to-face lectures, tutorials and laboratory sessions, plus online support via subject websites. The subject websites are managed by a software package called Blackboard and contain subject outlines, all

relevant handouts, supplemental learning materials (eg. on-line quizzes), contact information, in-semester assessment results, subject feedback forums, and other discussions forums where appropriate. The course emphasizes a practical approach to the development of engineering skills re-enforced by practical and project work.

#### **D4.1. Programs or major parts of programs offered in distance mode**

The Mechanical Engineering program is not offered in distance mode. However, students have the opportunity to take their electives in distance mode (flexible delivery) allowing completion of the last few subjects of their degree whilst working away from Melbourne.

### **D5. Assessment**

#### **D5.1. Approach taken to assessment**

Assessment is based on attendance, assignments, project, exam and presentations as specified for each specific program. CIUJ will follow SUT requirements unless otherwise specified. CIUJ students who continue to complete their degree at SUT will be subject to SUT rules.