

## PROGRAMME SPECIFICATION DOCUMENT

<b>1. Qualification</b> Diploma of Higher Education	<b>2. Programme Title</b> Diploma of Higher Education degree in Mechatronics	<b>3. UCAS Code</b>	<b>4. Programme Type</b> Full Time Collaboration with Shanghai University Off-Campus Overseas Delivery
<p><b>5. Main Purposes and Distinctive Features of the Programme</b></p> <p><u>Main Purpose</u></p> <ul style="list-style-type: none"> <li>To provide an advanced engineering education to a wide range of individuals, consistent with their ability and experience;</li> <li>To produce Technician Engineers who have the necessary skills, attitudes and experience to immediately contribute to the industrial environment and society as a whole;</li> <li>To equip the student with the motivation and intellectual powers to deal with future developments and to encourage life-long learning and personal development;</li> <li>To develop in students an understanding of the Technician Engineer's role and responsibilities to the engineering industries, clients and society;</li> <li>To increase the skills base of the engineering workforce</li> <li>To prepare learners for higher level study.</li> </ul> <p><u>Special Features</u></p> <p>The DipHE is developed in collaboration with Shanghai University Institute of Higher Technology SongJiang Branch (PRChina). The University of Bolton will deliver up to 60 credits (ie 60 credits based on the Institute's current credit system) worth of modules each academic year in the first and second year of the diploma course in Shanghai China. SHUIHTSB will be responsible for delivery of the remaining modules.</p> <p>Students who have successfully completed the course programme with all the required modules and work experience and training will be awarded both the Shanghai University Higher Professional Education Diploma and The University of Bolton Diploma of Higher Education.</p>			
<p><b>6. What a graduate should know and be able to do on completion of the programme</b></p> <p>The programme provides opportunities for students to develop and demonstrate knowledge and understanding in the following areas:</p>			
<p><u>Knowledge and understanding in the context of the subject(s)</u></p> <p><b>K1</b> knowledge and critical understanding of the well established engineering principles in mechatronics of study and the way those principles have developed;</p> <p><b>K2</b> knowledge of the main methods of enquiry in the subject, and ability to evaluate the appropriateness of different approaches to solving problems in mechatronics of study and apply these in a practical context;</p> <p><b>K3</b> knowledge and understanding of using technical information in an engineering environment;</p> <p><b>K4</b> knowledge and understanding of environmental, legal and socio-economic issues in the context of discipline</p> <p><b>K5</b> understanding of limits of their knowledge and how this influences analyses and interpretation.</p>		<p><u>Subject-specific practical/professional skills</u></p> <p><b>S1</b> general competence in IT and computer aided engineering;</p> <p><b>S2</b> competence in the safe use and operation of hand tools and machine tools;</p> <p><b>S3</b> ability of communication and presentation to a professional standard;</p> <p><b>S4</b> ability of applying structured analysis and design methods to specific problems in mechatronics;</p> <p><b>S5</b> ability of selecting and using basic mechatronic elements, materials and processes in design projects.</p>	

<p><u>Cognitive skills in the context of the subject(s)</u></p> <p><b>C1</b> use a range of established techniques to initiate and undertake critical analysis of information, and to propose solutions to problems arising from that analysis in mechatronics of study and in a practical context;</p> <p><b>C2</b> effectively communicate information, arguments and analysis in a variety of forms to specialist and non-specialist audiences, and deploy key techniques of the discipline effectively in mechatronics of study and in a practical context;</p> <p><b>C3</b> ability to apply underlying concepts and principles outside the context in which they were first studied, and the application of these principles in a practical context</p> <p><b>C4</b> undertake further training, develop existing skills and acquire new competences that will enable them to assume responsibility within organisations;</p>	<p><u>Other skills (e.g. key/transferable) developed in subject or other contexts</u></p> <p><b>O1</b> ability to research and investigate issues and topics and self-learn</p> <p><b>O2</b> capacity for insight, creativity and innovation</p> <p><b>O3</b> ability to communicate effectively both orally and in writing</p> <p><b>O4</b> time management</p> <p><b>O5</b> ability to work within a team and team leadership skills</p> <p><b>O6</b> Environmental and safety awareness</p>
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### 7. Qualities, Skills & Capabilities Profile

The educational and training goals of the programme seek to develop and demonstrate the following qualities, skills, capabilities and values in its graduates:

A Cognitive	B Practical	C Personal & Social	D Other
Problem solving	Writing skills	Self-motivation	Professional awareness
Flexibility of approach	Drawing and CAD skills	Organisation and time management	Life-long learning
Learning skills	Presentation skills	Team working	
Analysis and appraisal	Engineering workshop skills	Recognition of environmental and H&S issues	
Critical reasoning	Experimental skills	Ability to self-learn	
Interpretation of information	IT skills		

**8. Duration and Structure of Programme/Modes of Study/Credit Volume of Study Units**

3 Years full-time

HE Level 2	<u>Core Modules</u> Project (20) Instrumentation and Control (20) Computer Applications and Engineering (20) Mechatronic Systems (20) Industrial Studies (10) Quality Assessment (10)  <u>Optional Modules (Select One)</u>  Manufacturing Systems and Automation (20) Design Studies 2 (20) Materials and Manufacturing 2 (20)	Total 120 Credits	
HE Level 1	<u>Core Modules</u> Core Skills (20) Engineering Principles (20) Design and Applications (20) Materials and Manufacturing I (20) Engineering Analysis (10) Electrical and Electronics Principles (10) Mechanical Science (10) Environmental Aspects (10)	Total 120 Credits	

**9. Learning, Teaching and Assessment Strategy**Learning and Teaching Methods

Active learning is promoted through lectures, tutorials, seminars, laboratory sessions, IT sessions, case-based assignments, individual research, demonstrations, class-based design and modelling work, drawing/design & computer based exercises

Assessment Methods

Examinations, Phase tests, Case-based assignments, Written assignments, Laboratory reports, Oral presentations and Project reports

**10. Other Information** *(including compliance with relevant Institute policies)*Date programme first offered

September 2005

Admissions Criteria

The DipHE mechatronics is an off-campus overseas collaboration course and will run in Shanghai, the Shanghai Educational Committee's admission policy will be applied.

Entry Qualifications

Applicants will normally have satisfied university entrance examinations organised by Shanghai Municipal Educational Examinations Authority. Students recruited in DipHE mechatronics course will have the same entrance standards as those recruited by Shanghai University Institute of Higher Technology SongJiang Branch.

Indicators of Quality and Standards

Validated by panel with external panel member.