

<b>Short Title:</b>	Research Project 30 (Part 2: Implementation) <b>APPROVED</b>
<b>Full Title:</b>	Research Project 30 (Part 2: Implementation)
<b>Module Code:</b>	MIOT H6022
<b>ECTS credits:</b>	25
<b>NFQ Level:</b>	9
<b>Module Delivered in</b>	<a href="#">1 programme(s)</a>
<b>Module Contributor:</b>	Philip Owende
<b>Module Description:</b>	<p>The Research Project Part 2 (Implementation) will enable learners to develop critical research skills, including: ability to conduct state-of-the-art literature/technology review, requisite skills for clear and concise communication of research methods, including experimental procedures and data analyses, and the communication of findings to experts in the Internet of Things Technologies (IoT) subject domains and to the society at large. Learners will be expected to contribute to knowledge in the IoT Technologies domains, but not necessarily as original ideas. The focus is on initiation and management of a structured inquiry from the underpinning problem statement, through experimentation and/or data collection, and analyses and technical reporting. The processes will integrate knowledge gained from all other taught modules in the programme and experiential knowledge on subject matters, to develop the rationale for research, set out the research objectives and structured inquiry methods, collect and analyse data, and probe the findings, upon which validated conclusions will be drawn, and the outcome of the research project determined.</p>
<b>Learning Outcomes:</b>	
<i>On successful completion of this module the learner will be able to</i>	
<ol style="list-style-type: none"> <li>1. Search, critically review, and appropriately cite literature sources that are relevant to a proposed research project, and synthesize appropriate conclusions and findings through knowledge and systematic understanding of the research process and any limitations of the work.</li> <li>2. Design physical/model of IoT Technology-Specific experiment and apply the appropriate software tools, sensors, and instrumentation to obtain pertinent service and/or performance data.</li> <li>3. Undertake an error analysis on the experimental data or numerical results and identify the major contributing factors to such errors (if any).</li> <li>4. Apply ethical considerations in the preparation of a research project and experimental design through compliance with the prevailing ethical considerations and Standard of Best Practice.</li> <li>5. Communicate the outcomes of each stage of the research project to professional standards, via oral presentations, and through a project thesis/dissertation.</li> </ol>	

**Module Content & Assessment**

**Indicative Content**

**Contents to cover:**

Research Project Implementation: Framework for Project Management; Literature/Technology Review; Software/Hardware Implementation, starting from proof of concept design, deployment and testing (for, performance suitability, reliability, operability); Experimental Design; Testing and Evaluation; Data Harvesting, Transmission, Hosting, Analysis, and Value Discovery; Technical Reporting & Technical Writing; Thesis Compilation.

**Indicative Assessment Breakdown**

Course Work Assessment %

%

100.00%

**Course Work Assessment %**

Assessment Type	Assessment Description	Outcome addressed	% of total	Assessment Date
Written Report	Literature/Technology Review	1	25.00	n/a
Performance Evaluation	Research Progress Report	2,3,4	12.50	n/a
Presentation	Seminar/Final Project Presentation	3,4,5	12.50	n/a
Project	MEng Thesis	1,2,3,4,5	50.00	n/a

No Final Exam Assessment %

**Indicative Reassessment Requirement**

**Coursework Only**

*This module is reassessed solely on the basis of re-submitted coursework. There is no repeat written examination.*

**ITB reserves the right to alter the nature and timings of assessment**

**Indicative Module Workload & Resources**

<b>Resources</b>
<i>Recommended Book Resources</i>
<p>John W. Creswell. 2014, <i>Research design</i>, 4th Ed., Thousand Oaks; Sage Publications London [ISBN: 9781452226095]</p> <p>Joshua Schimel. 2011, <i>Writing science</i>, 1st Ed., Oxford [Oxfordshire]; Oxford University Press Oxford [ISBN: 9780199760244]</p> <p>Catherine, Dr. Dawson 2010, <i>Introduction to Research Methods</i>, 4th Ed., How to Books Glasgow [ISBN: 9781845283674]</p> <p>Day R &amp; B Gastel 2006, <i>How to write and publish a scientific paper</i>, Greenwood Press. Westport, CT [ISBN: 0313330271]</p>
<i>Recommended Article/Paper Resources</i>
<p>Poeschl M, S Ward &amp; P Owende 2012, <i>Environmental impacts of biogas deployment, Part 1: Life Cycle Inventory for evaluation of production process emissions to air</i>, Journal of Cleaner Production, 24, 168</p> <p>Brennan L and PMO Owende 2010, <i>Biofuels from Microalgae - A Review of Technologies for Production, Processing and Extractions of Biofuels and Co-products</i>, 14(1), 557</p>
<i>This module does not have any other resources</i>

**Module Delivered in**

Programme Code	Programme	Semester	Delivery
BN_EMIOT_R	<a href="#">Master of Engineering in Internet of Things Technologies [BN535R 60 credits taught with a 30 credit research project]</a>	3	Mandatory