



## Subject Description Form

<b>Subject Code</b>	ISE3103/IC3103
<b>Subject Title</b>	Integrated Project
<b>Credit Value</b>	3 Training Credits
<b>Level</b>	3
<b>Pre-requisite/ Co-requisite/ Exclusion</b>	Nil
<b>Objectives</b>	<p>This subject aims to provide students hands-on engineering-business project experience. In real industrial situations, all projects are related to both engineering and business; such as design feasibility and market opportunity. Engineers are expected having the skills of working in interdisciplinary teams on multidisciplinary projects. In this subject, students have to work in a team with members from other disciplines on an engineering-business project which students may practice and integrate their learned theories and knowledge from academic subjects in their programmes.</p>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <ul style="list-style-type: none"><li>a) Describe the benefits from experience in working within an interdisciplinary team on a multidisciplinary project of both engineering and business. (<i>Objective 1 and Syllabus Item 1-4</i>). <i>Category A</i></li><li>b) Formulate solutions for different stages of a multidisciplinary project such as project planning, market research, design &amp; packaging, CAD &amp; prototyping, technology investigation, inventory &amp; distribution management, and business proposal &amp; presentation. (<i>Objective 1 and Syllabus Item 1-4</i>). <i>Category A</i></li><li>c) Integrate knowledge developed over the course of their field of study to achieve the objectives of the project by producing the deliverables (<i>Objective 1 and Syllabus Item 1-4</i>). <i>Category A</i></li><li>d) Manifest their work effectiveness in multidisciplinary and multilateral teams, and demonstrate tolerance and awareness of other viewpoints (<i>Objective 1 and Syllabus Item 1-4</i>). <i>Category B</i></li><li>e) Collaboratively execute an application oriented project through group work and discussions and inspires oneself to learn continuously about current industrial technologies (<i>Objective 1 and Syllabus Item 1-4</i>). <i>Category B</i>.</li></ul>



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<b>Subject Synopsis/ Indicative Syllabus</b>	<p>The extent of the project will depend on the nature of the project that students work on, not all listed activities are likely to be undertaken for all projects.</p> <ol style="list-style-type: none"><li>1. <u>Project Planning</u> Scheduling of Market Research, Design, Prototype, Technology Audit, Inventory and Distribution Management, and Business Proposal. Allocation of resources of Manpower, Machines, and Money.</li><li>2. <u>Market Research</u> Start with collecting information in market in the view of the given project theme. Then analyze the potential market, estimate the market opportunity, and identify the market niche,</li><li>3. <u>Design Activity</u> Iterative design processes to evaluate &amp; make concept decisions for the theme product and also packaging; document and communicate the concept information to designer, engineers, and marketing people.</li><li>4. <u>Prototype Development</u> Build a prototype with the facilities in the centre such as CAD, RP, or CNC; to evaluate, demonstrate, and present the design concepts as well as functionality.</li><li>5. <u>Technology Investigation</u> Investigate the existing technologies and equipment in the centre. Evaluate the cost and performance of different manufacturing processes. Study the feasibility of manufacturing of the product.</li><li>6. <u>Inventory &amp; Distribution Management</u> Estimate the production volume and the inventory control level, or if necessary as well as the warehouse management. Propose the wholesale and retail distribution channels.</li><li>7. <u>Business Proposal and Presentation</u> Present a business proposal with consolidating the findings from Market Research to Distribution Management. Summarize the pricing strategy, cost, resources, volume, time and prediction of the profit.</li></ol>
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<p><b>Learning Methodology</b></p>	<p>All projects assigned will be of ‘real’ work basis proposed by supervisors. Typical projects are product for a specific application, material handling systems, testing jig and fixture...etc. These projects are always having a real problem of serious interest to the clients which requires students to meet the expected demand.</p>																																																				
<p><b>Assessment Methods in Alignment with Intended Learning Outcomes</b></p>	<table border="1" data-bbox="475 517 1469 1120"> <thead> <tr> <th rowspan="2">Assessment Methods</th> <th rowspan="2">Weighting (%)</th> <th colspan="5">Intended Learning Outcomes Assessed</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> </tr> </thead> <tbody> <tr> <td>1. In-class Assignment</td> <td>30</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> <td>✓</td> </tr> <tr> <td>2. Project Performance</td> <td>30</td> <td>✓</td> <td>✓</td> <td>✓</td> <td>✓</td> <td></td> </tr> <tr> <td>3. Oral Presentation</td> <td>20</td> <td>✓</td> <td>✓</td> <td></td> <td>✓</td> <td></td> </tr> <tr> <td>4. Written Report</td> <td>20</td> <td></td> <td></td> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td>Total</td> <td>100</td> <td colspan="5"></td> </tr> </tbody> </table> <p>The In-class assignment is aimed at assessing student’s individual performance and practical ability in the project works.</p> <p>The Project Performance is a group assessment on the deliverables in different stages during the project.</p> <p>Oral Presentation allows students presenting their project clearly and logically including the project objectives, approaches, and deliverables. It consists both “group” and “individual” works to reflect the overall group performance and individual student’s contribution.</p> <p>Written Report is to facilitate students to sum up the project holistically. The assessment will focus on the discussion and reflection. It consists both “group” and “individual” works to reflect the overall group performance and individual student’s contribution.</p>						Assessment Methods	Weighting (%)	Intended Learning Outcomes Assessed					a	b	c	d	e	1. In-class Assignment	30	✓	✓	✓		✓	2. Project Performance	30	✓	✓	✓	✓		3. Oral Presentation	20	✓	✓		✓		4. Written Report	20			✓	✓	✓	Total	100					
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<b>Student Study Effort Expected</b>	<b>Class Contact</b>	
	▪ Practical appreciation and Group Project	90 Hrs.
	<b>Total Study Effort</b>	<b>90 Hrs.</b>
<b>Reading List and References</b>	Reading materials published by the Industrial Centre on <ol style="list-style-type: none"><li>1. Rapid Prototyping</li><li>2. Computer Aided Manufacturing</li><li>3. Plastics Processing</li><li>4. Surface Finishing</li></ol>	