

Subject Description Form

Subject Code	ISE3103/IC3103
Subject Title	Integrated Project
Credit Value	3 Training Credits
Level	3
Pre-requisite/ Co-requisite/ Exclusion	Nil
Objectives	<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>
Intended Learning Outcomes	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> 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> b) Formulate solutions for different stages of a multidisciplinary project such as project planning, market research, design & packaging, CAD & prototyping, technology investigation, inventory & distribution management, and business proposal & presentation. (<i>Objective 1 and Syllabus Item 1-4</i>). <i>Category A</i> 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> 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> 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>.

<p>Subject Synopsis/ Indicative Syllabus</p>	<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"> 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. 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, 3. <u>Design Activity</u> Iterative design processes to evaluate & make concept decisions for the theme product and also packaging; document and communicate the concept information to designer, engineers, and marketing people. 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. 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. 6. <u>Inventory & 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. 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.
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Learning Methodology	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.																																																				
Assessment Methods in Alignment with Intended Learning Outcomes	<table border="1" data-bbox="475 387 1468 996"> <thead> <tr> <th data-bbox="475 387 780 566" rowspan="2">Assessment Methods</th> <th data-bbox="780 387 956 566" rowspan="2">Weighting (%)</th> <th colspan="5" data-bbox="956 387 1468 495">Intended Learning Outcomes Assessed</th> </tr> <tr> <th data-bbox="956 495 1058 566">a</th> <th data-bbox="1058 495 1160 566">b</th> <th data-bbox="1160 495 1262 566">c</th> <th data-bbox="1262 495 1364 566">d</th> <th data-bbox="1364 495 1468 566">e</th> </tr> </thead> <tbody> <tr> <td data-bbox="475 566 780 674">1. In-class Assignment</td> <td data-bbox="780 566 956 674">30</td> <td data-bbox="956 566 1058 674">✓</td> <td data-bbox="1058 566 1160 674">✓</td> <td data-bbox="1160 566 1262 674">✓</td> <td data-bbox="1262 566 1364 674"></td> <td data-bbox="1364 566 1468 674">✓</td> </tr> <tr> <td data-bbox="475 674 780 781">2. Project Performance</td> <td data-bbox="780 674 956 781">30</td> <td data-bbox="956 674 1058 781">✓</td> <td data-bbox="1058 674 1160 781">✓</td> <td data-bbox="1160 674 1262 781">✓</td> <td data-bbox="1262 674 1364 781">✓</td> <td data-bbox="1364 674 1468 781"></td> </tr> <tr> <td data-bbox="475 781 780 853">3. Oral Presentation</td> <td data-bbox="780 781 956 853">20</td> <td data-bbox="956 781 1058 853">✓</td> <td data-bbox="1058 781 1160 853">✓</td> <td data-bbox="1160 781 1262 853"></td> <td data-bbox="1262 781 1364 853">✓</td> <td data-bbox="1364 781 1468 853"></td> </tr> <tr> <td data-bbox="475 853 780 925">4. Written Report</td> <td data-bbox="780 853 956 925">20</td> <td data-bbox="956 853 1058 925"></td> <td data-bbox="1058 853 1160 925"></td> <td data-bbox="1160 853 1262 925">✓</td> <td data-bbox="1262 853 1364 925">✓</td> <td data-bbox="1364 853 1468 925">✓</td> </tr> <tr> <td data-bbox="475 925 780 996">Total</td> <td data-bbox="780 925 956 996">100</td> <td colspan="5" data-bbox="956 925 1468 996"></td> </tr> </tbody> </table> <p data-bbox="475 1014 1468 1086">The In-class assignment is aimed at assessing student’s individual performance and practical ability in the project works.</p> <p data-bbox="475 1126 1468 1198">The Project Performance is a group assessment on the deliverables in different stages during the project.</p> <p data-bbox="475 1238 1468 1391">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 data-bbox="475 1431 1468 1583">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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Student Study Effort Required	Class Contact	
	▪ Practical appreciation and Group Project	90 Hrs.
	Total Study Effort	90 Hrs.
Reading List and References	Reading materials published by the Industrial Centre on <ol style="list-style-type: none"> 1. Rapid Prototyping 2. Computer Aided Manufacturing 3. Plastics Processing 4. Surface Finishing 	