



Sub.	Course Description – توصيف مقرر دراسي	الموضوع	 <b>كليات المعرفة</b> ALMAAREFA COLLEGES
Date		التاريخ	

Course Code & No	IE401		رقم المقرر ورمزه
Course Name	Engineering economy and costing		اسم المقرر
Credit Hours	3 (3+2+0)		عدد الساعات المعتمدة
Pre-requisite	MATH 301, MATH 251		المتطلب السابق

General Description	توصيف عام
<p>Cost concepts. Cost analysis, Time value of money operations. Measuring the worth of investments. Comparison of alternatives. Depreciation. Economic analysis of public projects, manufacturing cost accounts, product cost estimation and pricing.</p>	

Course Objectives	أهداف المقرر
<p>To get student acquainted with the economy of selection and operation engineering projects and selecting projects.</p> <p><b>By the end of the course, each student should be able to:</b></p> <ol style="list-style-type: none"> <li>1. Recognize the fundamentals of engineering economy and the basic principles of the time value of money.</li> <li>2. Explain the cash-flow diagrams.</li> <li>3. Compare different interest rates i.e., simple, compound, MARR, ROR, nominal and effective.</li> <li>4. Calculate equivalent values for time based cash flows of varying complexities.</li> <li>5. Compare economic alternatives based on equivalent present worth (PW), future worth (FW), capitalized cost (CC), payback period (PbP), annual worth (AW) values and Benefit cost ratios (B/C).</li> <li>6. Calculate the internal rate of return (IRR) and evaluate an economic alternative on the basis of IRR.</li> <li>7. State analytical decisions by replacement and breakeven analysis of different projects/alternatives. <ul style="list-style-type: none"> <li>• Calculate depreciations related to machines/projects.</li> </ul> </li> </ol>	

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Course Outlines	مفردات المقرر
<ul style="list-style-type: none"> <li>• Introduction to Engineering Economy and Interest Relationships</li> <li>• Economics Equivalence</li> <li>• Company Start-up and stockholders and Inflation</li> <li>• Bases for comparison</li> <li>• Analysis of alternatives</li> <li>• Principles, concepts and the importance of cost analysis and estimating</li> <li>• Evaluating production</li> <li>• Estimating cost elements</li> <li>• Direct cost analysis</li> <li>• Indirect costs and proposals</li> <li>• Evaluating replacement</li> <li>• Evaluating public activities and income tax</li> <li>• Accounting and depreciation</li> <li>• Product estimating and pricing</li> </ul>	

References	المراجع
<p><b>Required Textbooks</b>  Leland Blank and Anthony Tarquin, Basics of Engineering Economy, McGraw-Hill , latest edition</p> <p><b>Essential References Materials</b></p> <ul style="list-style-type: none"> <li>• Park, Chan S., Fundamentals of Engineering Economics, Prentice Hall (Pearson/Prentice Hall, latest edition</li> <li>• William G. Sullivan, Elin M. Wicks and C. Patrick Koelling, Engineering Economy, 14-E, Pearson, latest edition.</li> </ul>	