

1. Course Description

| COURSE DESCRIPTION FORM | |
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| Course Code and Title | KM378 ENGINEERING ECONOMICS |
| Course Semester | 6 |
| Catalog Description (Content) of the Course | Introduction to economics. Basic concepts and laws of economy. Supply-demand mechanism and flexibility. Cost estimation. Interest. Depreciation. Investment profitability. Preparation of preliminary feasibility reports on selected topics. |
| Main Textbook | Peters, M.S., Timmerhaus, K. D. and West, R.E., Plant Design and Economics for Chemical Engineers, 5th ed., Mc Graw Hill, New York, 2003. |
| Supporting Textbooks | <ul style="list-style-type: none"> • Park, C.S., Contemporary Engineering Economics, 2nd ed., Addison Wesley, 1997. • Sullivan, W.G., Bontadelli, J.A., Wicks E.M., Engineering Economy, Prentice Hall, 2000. • Blank, L., Tarquin, A., Engineering Economy, 5th ed., Mc Graw Hill, New York, 2002. • Turton, R., et al., Analysis, Synthesis and Design of Chemical Processes, 2. ed., Prentice Hall, New Jersey, 2003. |
| Course Credit (ECTS) | 5 |
| Prerequisites of the Course (Compulsory attendance should be indicated here.) | There is no prerequisite or co-requisite for this course. The minimum attendance requirement is 70%. |
| Type of the Course | Compulsory |
| Instruction Language of the Course | Turkish |
| Object and Target of the Course | It is aimed to teach the principals of market and process survey, to determine whether a project can be realized by cost analysis and to acquire necessary knowledge and skills for comparison of investment options. The target of the course is to be gained the ability to use the principles of engineering economics in the process of investment decision-making.. |
| Learning Outcomes of the Course | <ol style="list-style-type: none"> 1. To be able to estimate investment cost and product cost for a new production process, 2. To find an economical solution by methods of evaluating the investment options, 3. To be able to prepare market survey and preliminary feasibility report, 4. Ability to work in groups, communicate effectively in writing and oral presentation, 5. Creating awareness on ethical responsibility, entrepreneurship, innovation and sustainable development. |
| Mode of Delivery | The mode of delivery of this course is face to face |
| Weekly Schedule of the Course | <p>1-2. Week: Basic principles in economy and consumer's economy</p> <p>3. Week: Chemical engineering economy and production. Market survey and feasibility survey report</p> <p>4-5. Week: Interest</p> <p>6. Week: Depreciation</p> <p>7-10. Week: Cost estimation Factors effecting capital manufacturing cost, capital cost estimation, manufacturing cost estimation, cost, profit, income</p> <p>11-12. Week: Profitability analysis</p> <p>13. Week: Alternative investment analysis</p> <p>14. Week: Presentations</p> |

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| Educative Activities (Credit will be determined based on the time given for these activities. Should be filled carefully.) | Theoretical Study Hours of Course Per Week Reading Searching in Internet and Library Preparing Reports Preparing Presentation Presentation Mid-Term and Studying for Mid-Term Final and Studying for Final | | | | | | | | | | | |
| Assessment Criteria | | Quantity | Total Contribution (%) | | | | | | | | | |
| | Midterm | 2 | 45 | | | | | | | | | |
| | Homework | 2 | 5 | | | | | | | | | |
| | Assignment | 0 | 0 | | | | | | | | | |
| | Projects | 1 | 10 | | | | | | | | | |
| | Practice | 0 | 0 | | | | | | | | | |
| | Quiz | 0 | 0 | | | | | | | | | |
| | Contribution of In-term Studies to Overall Grade | | 60 | | | | | | | | | |
| | Contribution of Final Examination to Overall Grade | | 40 | | | | | | | | | |
| | Attendance | 0 | 0 | | | | | | | | | |
| Workload of the Course | Activity | | Total Week Count | Weekly Duration (in hour) | Total Workload in Semester | | | | | | | |
| | Theoretical Study Hours of Course Per Week | | 14 | 3 | 42 | | | | | | | |
| | Practicing Hours of Course Per Week | | 0 | 0 | 0 | | | | | | | |
| | Reading | | 10 | 2 | 20 | | | | | | | |
| | Searching in Internet and Library | | 10 | 2 | 20 | | | | | | | |
| | Designing and Applying Materials | | 0 | 0 | 0 | | | | | | | |
| | Preparing Reports | | 3 | 3 | 9 | | | | | | | |
| | Preparing Presentation | | 2 | 2 | 4 | | | | | | | |
| | Presentation | | 1 | 3 | 3 | | | | | | | |
| | Mid-Term and Studying for Mid-Term | | 2 | 5 | 10 | | | | | | | |
| | Final and Studying for Final | | 1 | 6 | 6 | | | | | | | |
| | Other | | 0 | 0 | 0 | | | | | | | |
| | Total work load | | | | | | 114 | | | | | |
| | Total work load/25 | | | | | | 4.56 | | | | | |
| | ECTS of the course | | | | | | 5 | | | | | |
| | Course's Contribution To Program | No | Program Learning Outcomes | | 1 | 2 | 3 | 4 | 5 | | | |
| 1 | | Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems. | | | | × | | | | | | |
| 2 | | Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose. | | | | × | | | | | | |

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| | 3 | Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose. | × | | | | |
| | 4 | Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively. | × | | | | |
| | 5 | Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems. | × | | | | |
| | 6 | Ability to work efficiently in intra-disciplinary teams. | | | | × | |
| | 7 | Ability to work efficiently in multi-disciplinary teams; | × | | | | |
| | 8 | Ability to work individually. | | × | | | |
| | 9 | Ability to communicate effectively in Turkish/English, both orally and in writing; Ability to write effective reports and comprehend written reports, make effective presentations, | | | | | × |
| | 10 | prepare design and production reports, give and receive clear and intelligible instructions. | × | | | | |
| | 11 | Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself. | | | | × | |
| | 12 | Awareness of professional and ethical responsibility. | | | × | | |
| | 13 | Information about business life practices such as project management, risk management, and change management. | × | | | | |
| | 14 | Information about awareness of entrepreneurship, innovation, and sustainable development. | | | | × | |
| | 15 | Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety. | × | | | | |
| | 16 | Knowledge about awareness of the legal consequences of engineering solutions. | | × | | | |
| | 17 | Knowledge on standards used in engineering practice. | × | | | | |

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| Name of Lecturer(s) and Contact Information | 1. Prof. Dr. Ö. Murat Doğan (mdogan@gazi.edu.tr) 2. Prof. Dr. Meltem Doğan (meltem@gazi.edu.tr) 3. Asst. Prof. Dr. Hüseyin Arbağ (harbag@gazi.edu.tr) |
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