

**ELECTRICAL AND ELECTRONICS ENGINEERING BACHELOR DEGREE PROGRAM INFORMATION**

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| <b>General Information</b>                         | <p>TOBB ETÜ Electrical and and Electronics Engineering Program, founded in 2004 gave its first graduates in 2008. There are currently 11 faculties in the department. The faculty does research mostly in the areas of microelectronics, control, communications, signal processing, biomedical, optics/photonics and smart grid.</p> <p>In order to qualify for the program the student must pass or obtain exemption from the English Preparatory Program (requires 61 from TOEFL IBT or 500 from TOEFL ITP). The first three terms of the program provides background in mathematics and basic science. Departmental courses start in the third semester. An academic year at TOBB ETÜ consists of three semesters (Fall, Spring and Summer). After the fifth semester the students take their first Cooperative Education. Cooperative Education (Coop) is a semester-long internship program with payment and insurance. After returning from their first Coop, students continue the programme in a one term course - one term internship pattern until graduation. The program lasts for 11 semesters, three of which are for Coop semesters. In the last two course semesters students have to take 4-5 departmental , 1-2 technical and one non-technical elective in order to gain deeper knowledge in the areas they desire. The program culminates in a Senior Design Project course, where the students apply their knowledge on an extensive project.</p> |
| <b>Program Purpose</b>                             | <p>The purpose of the B.S. Program in Electrical and Electronics Engineering is to educate successful engineers that are capable of leadership, and are strong in adapting to the ever-changing world.</p>  |
| <b>Degree Earned</b>                               | <p>Students who complete the department are entitled to receive a bachelor degree in Electrical and Electronics Engineering.</p>  |
| <b>Level of Degree Earned</b>                      | <p>Bachelor degree (NQF- HETR 6. Level)</p>   |
| <b>Requirements and Rules of the Degree Earned</b> | <p>Graduation requirements are defined according to Article 45 of the Undergraduate Education and Examination Regulation (link: <a href="http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIliski=0&amp;sourceXmlSearch=">http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIliski=0&amp;sourceXmlSearch=</a>). For graduation the student should a) successfully complete 287 ECTS credits including the three Cooperative Education semesters within the maximum allowable time period b) obtain a GPA of 2.00/4.00.</p>  |
| <b>Registration Admission Requirements</b>         | <p>Student quota of our undergrad programs are determined by the board of regents after a suggestion by the Senate and subject to the approval of the Higher Education Council (YÖK). Acceptance of candidate students is according to the ÖSYM exam scores. Acceptance of foreign students are carried out according to the rules determined by the Senate. Acceptance of horizontal and vertical transfer students and special/guest/exchange students are regulated by the departmental and faculty administrative boards according to Undergraduate Education and Examination Regulation (link: <a href="http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIliski=0&amp;sourceXmlSearch=">http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIliski=0&amp;sourceXmlSearch=</a>)</p>  |
| <b>Recognition of Prior Learning</b>               | <p>A student arriving through the ÖSYM examination or by undergraduate transfer can substitute courses taken in a quitted previous higher education program. The substitution of the courses taken in a previous program, its equivalency and suitability with the courses in the program are evaluated at the Departmental and Engineering Faculty Boards.</p> <p>In case of approval of substitution, the course is substituted with its letter grade. In case of vertical transfer the course is substituted with M (Exempt) grade. Grade is converted to a letter at graduation.</p>  |
| <b>Examinations, Assessment and Grading</b>        | <p>Evaluation and assessment methods used for each course are defined according to Article 22 of the Undergraduate Education and Examination Regulation (link: <a href="http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIliski=0&amp;sourceXmlSearch=">http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIliski=0&amp;sourceXmlSearch=</a>). Except the project and laboratory courses, which do not necessarily require an examination, all courses require at least a midterm and a final exam. Final exams are applied in a specific period of time indicated in the Academic Calendar. Final exam period and classrooms are determined by the Rectorate.</p>  |
| <b>Teaching Style</b>                              | <p>The style of education is Full-Time and Day-Time. Most of the courses are given in classrooms. Only the TÜR 101, 102 Turkish and AİT 201,202 Principles of Atatürk and History of Revolution courses are given by distance education methods.</p>  |
| <b>Graduation Requirements</b>                     | <p>Graduation requirements are defined according to Article 45 of the Undergraduate Education and Examination Regulation (link: <a href="http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIliski=0&amp;sourceXmlSearch=">http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&amp;MevzuatIliski=0&amp;sourceXmlSearch=</a>). For graduation the student should a) successfully complete the 287 ECTS credits including the three Cooperative Education semesters within the maximum allowable time period b) obtain a GPA of 2.00/4.00.</p>  |

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| <b>Occupational Profiles of Graduated-Employment Opportunities</b> | <p>A great majority of our graduates can find a job within 6 months of graduation. Also 30% of our graduates start their career in one of their Coop companies. Our graduates mostly occupy Electronics, Defense, Space/Aviation, Telecommunications and Information Technologies sectors. Companies like ASELSAN , ROKETSAN, TÜBİTAK, TAİ, ARÇELİK, TÜRK TELEKOM and HAVELSAN are the ones that employ most of our graduates. Our graduates usually work as R&amp;D/Design, System, Production or Test engineers. A 10% of our graduates have either founded their hi-tech start-up companies or work in their family ventures.</p>   |
| <b>Transition to a Upper Degree</b>                                | <p>Candidates that successfully finished their Bachelor's program are required to obtain a minimum 55/100 ALES score and a minimum 50/100 English score in order to be accepted to graduate programs. The graduate school also provides tuition remission and stipend to a limited number of candidates with higher scores. International candidates can also apply with a GRE score instead of ALES. Application requirements for graduate programs are listed in detail in the Graduate School web page.(link:<a href="https://www.etu.edu.tr/enstitu/fen-bilimleri-enstitusu/basvuru-bilgileri">https://www.etu.edu.tr/enstitu/fen-bilimleri-enstitusu/basvuru-bilgileri</a>)</p> |

| NQF-HETR PROGRAM QUALIFICATION MATRIX                                 |   |  |   | PROGRAM QUALIFICATIONS |   |   |   |   |   |   |   |   |    |    |   |
|---|---|--|---|------------------------|---|---|---|---|---|---|---|---|----|----|---|
| Program : Electrical and Electronics Engineering                      |   |  |   | 1                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |   |
| Related NQF-HETR Core Field: Engineering (Academic) - Bachelor Degree |   |  |   |                        |   |   |   |   |   |   |   |   |    |    |   |
| CORE AREA QUALIFICATIONS  | INFORMATION   | Theoretical - Factual                                    | Has the infrastructure in mathematics, science and engineering related to their branches.   | X                      |   |   |   |   |   |   |   |   |    |    |   |
|   | SKILLS  | Cognitive - Applied                                      | Uses mathematics, science and their theoretical and practical knowledge in their fields for engineering solutions.  | X                      |   |   |   |   |   |   |   |   |    |    |   |
|   |   |  | Identifies, defines, formulates and solves engineering problems, selects and applies appropriate analytical and modal techniques for this purpose.  |                        |   |   | X |   |   |   |   |   |    |    |   |
|   |   |  | Analyzes a system, system component or process and design it under realistic constraints to meet the required requirements; he/she implements modern design methods in this direction.      |                        |   | X |   |   |   |   |   |   |    |    |   |
|   |   |  | Selects and uses the modern techniques and tools necessary for engineering applications.  |                        |   |   |   |   |   |   |   |   |    | X  |   |
|   |   |  | Designs experiments, conducts experiments, analyzes and interprets data collection results.   |                        | X |   |   |   |   |   |   |   |    |    |   |
|   | COMPETENCIES  | Ability to work independently and to take responsibility | Works effectively on individual and multidisciplinary teams.  |                        |   |   | X |   |   |   |   |   |    |    |   |
|   |   |  | Gains access to information and research resources for this purpose, using databases and other sources of information.  |                        |   | X |   | X |   |   |   | X |    |    |   |
|   |   | Learning Competence                                      | Gains access to information and research resources for this purpose, using databases and other sources of information.  |                        |   | X |   | X |   |   |   |   | X  |    |   |
|   |   |  | Is aware of the necessity of lifelong learning; monitors developments in science and technology, and constantly innovates itself.   |                        |   |   |   |   |   |   |   |   | X  |    |   |
|   |   |  | Uses mathematics, science and their theoretical and applied knowledge in their fields for engineering solutions.  | X                      |   |   |   |   |   |   |   |   |    |    |   |
|   |   |  | Identifies, defines, formulates and solves engineering problems, selects and applies appropriate analytical and modal techniques for this purpose.  |                        |   |   |   | X |   |   |   |   |    |    |   |
|   |   |  | Analyze a system, system component or process and design it under realistic constraints to meet the required requirements; he/she implements modern design methods in this direction.       |                        |   |   | X |   |   |   |   |   |    |    |   |
|   |   |  | Selects and uses the modern techniques and tools necessary for engineering applications.  |                        |   |   |   |   |   |   |   |   |    | X  |   |
|   |   |  | Works effectively on individual and multidisciplinary teams.  |                        |   |   | X |   |   |   |   |   |    |    |   |
|   |   | Communication and Social Competence                      | Uses computer and communication technology at least in the European Computer Use License Advanced level required by his / her field.  |                        |   |   |   |   |   |   |   |   |    |    | X |
|   |   |  | Communicates verbally and in writing, using at least one foreign language at least at European Language Portfolio B1 General Level.   |                        |   |   |   |   |   |   | X |   |    |    |   |
|   |   |  | Communicates using technical drawing.   |                        |   |   |   |   |   |   | X |   |    |    | X |
|   |   |  | Gains access to information and research resources for this purpose, using databases and other sources of information.  |                        |   |   |   | X |   |   |   |   |    |    |   |
|   |   |  | Is aware of the universal and social effects of engineering solutions and practices; is aware of the issues of entrepreneurship and innovation, and has knowledge of contemporary problems. |                        |   |   |   |   |   |   |   |   | X  |    |   |
|   |   | Field Specific Competence                                | Has a professional and ethical responsibility.  |                        |   |   |   | X |   |   |   |   |    |    |   |
|   | Has awareness on project management, workplace practices, employee health, environmental and occupational safety; has an awareness of the legal consequences of their engineering applications.                   |  |   |                        |   |   |   |   |   |   | X |   |    |    |   |
|   | Demonstrates awareness of the universal and social implications of engineering solutions and practices; is aware of the issues of entrepreneurship and innovation and has knowledge of the problems of the times. |  |   |                        |   |   |   |   |   |   |   | X |    |    |   |

### Electrical and Electronics Engineering Program Qualifications

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| <b>1</b>  | an ability to apply knowledge of mathematics, science, and engineering   |
| <b>2</b>  | an ability to design and conduct experiments, as well as to analyze and interpret data   |
| <b>3</b>  | an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability) |
| <b>4</b>  | an ability to function on multidisciplinary teams  |
| <b>5</b>  | an ability to identify, formulate, and solve engineering problems  |
| <b>6</b>  | an understanding of professional and ethical responsibility  |
| <b>7</b>  | an ability to communicate effectively in English and in Turkish  |
| <b>8</b>  | the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context   |
| <b>9</b>  | a recognition of the need for, and an ability to engage in life-long learning  |
| <b>10</b> | a knowledge of contemporary issues   |
| <b>11</b> | an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice  |

| Program Qualifications Course Matrix of Electrical and Electronics Engineering |   | Program Qualifications |   |   |   |   |   |   |   |   |    |    |
|--|---|------------------------|---|---|---|---|---|---|---|---|----|----|
| Code   | Course Name   | 1                      | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| BİL 141  | Computer Programming I                                | 5                      | 1 | 3 | 1 | 2 | 3 | 1 | 1 | 1 | 1  | 4  |
| MAT 101  | Mathematics I   | 5                      | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 1 | 1  | 1  |
| FİZ 101  | Physics I   | 5                      | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 1 | 1  | 1  |
| FİZ 101L   | Physics Laboratory I                                  | 5                      | 5 | 1 | 1 | 2 | 3 | 2 | 1 | 1 | 1  | 1  |
| KİM 101  | General Chemistry                                     | 5                      | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 1 | 1  | 1  |
| KİM 101L   | General Chemistry Laboratory                          | 5                      | 5 | 1 | 1 | 2 | 3 | 2 | 1 | 1 | 1  | 1  |
| TÜR 101  | Turkish I   | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| İNG 001  | English I   | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| ELE 101  | Introduction t Electrical and Electronics Engineering | 1                      | 2 | 1 | 2 | 2 | 5 | 4 | 5 | 3 | 2  | 4  |
| BİL 142  | Computer Programming II                               | 5                      | 1 | 3 | 1 | 2 | 3 | 1 | 1 | 1 | 1  | 4  |
| MAT 102  | Mathematics II  | 5                      | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 1 | 1  | 1  |
| FİZ 102  | Physics II  | 5                      | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 1 | 1  | 1  |
| FİZ 102L   | Physics II Laboratory                                 | 5                      | 5 | 1 | 1 | 2 | 3 | 2 | 1 | 1 | 1  | 1  |
| OEG 101  | Introduction to Cooperative Education                 | 1                      | 1 | 1 | 1 | 1 | 3 | 1 | 3 | 1 | 1  | 1  |
| TÜR 102  | Turkish II  | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| İNG 002  | English II  | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| ELE 201  | Circuit Analysis I                                    | 5                      | 1 | 3 | 1 | 4 | 3 | 1 | 3 | 2 | 2  | 3  |
| ELE 201L   | Circuit Analysis I Laboratory                         | 5                      | 5 | 3 | 2 | 2 | 4 | 3 | 1 | 2 | 3  | 4  |
| ELE 263  | Digital System Design                                 | 4                      | 3 | 4 | 1 | 5 | 2 | 3 | 2 | 2 | 2  | 1  |
| ELE 263L   | Digital System Design Laboratory                      | 5                      | 5 | 5 | 2 | 5 | 4 | 3 | 2 | 3 | 2  | 5  |
| ELE 273  | Probability for Electrical Engineers                  | 5                      | 1 | 1 | 1 | 4 | 3 | 1 | 1 | 3 | 1  | 1  |
| MAT 201  | Linear Algebra  | 5                      | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 3 | 1  | 2  |
| AİT 201  | Principles of Atatürk and History of Revolution I     | 1                      | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | 1  | 1  |
| İNG 003  | English Writing Skills                                | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| ELE 224  | Electronic Circuits                                   | 5                      | 1 | 3 | 1 | 4 | 3 | 3 | 2 | 3 | 2  | 3  |
| ELE 224L   | Electronic Circuits Laboratory                        | 5                      | 5 | 3 | 1 | 4 | 4 | 3 | 2 | 3 | 2  | 4  |
| ELE 202  | Circuit Analysis II                                   | 5                      | 1 | 1 | 1 | 4 | 3 | 1 | 2 | 2 | 2  | 3  |
| ELE 231  | Electromagnetic Field Theory                          | 5                      | 1 | 1 | 1 | 4 | 3 | 1 | 2 | 2 | 2  | 1  |
| MAT 202  | Differential Equations                                | 5                      | 1 | 1 | 1 | 2 | 3 | 1 | 1 | 1 | 1  | 2  |
| AİT 202  | Principles of Atatürk and History of Revolution II    | 1                      | 1 | 1 | 1 | 1 | 3 | 1 | 1 | 1 | 1  | 1  |
| İNG 004  | English Presentation Skills                           | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| ELE 311  | Analog Electronics Circuits                           | 5                      | 4 | 4 | 1 | 4 | 4 | 4 | 2 | 2 | 1  | 3  |
| ELE 331  | Electromagnetic Wave Theory                           | 5                      | 1 | 1 | 1 | 4 | 3 | 1 | 2 | 2 | 2  | 3  |
| ELE 371  | Signals and Systems                                   | 5                      | 1 | 1 | 1 | 4 | 3 | 1 | 2 | 3 | 2  | 3  |
| ELE 375  | Numerical Methods for Electrical Engineers            | 5                      | 3 | 1 | 1 | 4 | 3 | 1 | 2 | 2 | 2  | 3  |
| END 320  | Engineering Economics                                 | 2                      | 1 | 4 | 1 | 3 | 3 | 1 | 4 | 1 | 1  | 3  |
| İYD - 1  | Second Foreign Language                               | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| OEG 200  | Cooperative Education I                               | 3                      | 2 | 2 | 5 | 2 | 3 | 4 | 5 | 3 | 3  | 5  |
| ELE 301  | Control Systems I                                     | 5                      | 2 | 3 | 1 | 4 | 3 | 1 | 3 | 2 | 2  | 4  |
| ELE 301L   | Control Systems I Laboratory                          | 5                      | 5 | 3 | 1 | 4 | 4 | 4 | 3 | 2 | 2  | 4  |
| ELE 361  | Introduction t Communication Systems                  | 5                      | 1 | 3 | 1 | 4 | 3 | 1 | 2 | 2 | 2  | 3  |
| ELE 361L   | Introduction to Communication Systems Laboratory      | 5                      | 5 | 3 | 1 | 4 | 3 | 3 | 2 | 2 | 2  | 4  |
| BİL 362  | Microprocessors                                       | 5                      | 1 | 1 | 1 | 4 | 3 | 1 | 2 | 2 | 2  | 4  |
| BİL 362L   | Microprocessors Laboratory                            | 5                      | 5 | 1 | 1 | 4 | 3 | 3 | 2 | 2 | 2  | 4  |
| UGİ 315  | Entrepreneurship and Innovation                       | 1                      | 1 | 4 | 3 | 1 | 3 | 3 | 3 | 2 | 3  | 1  |
| İYD - 2  | Second Foreign Language II                            | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| OEG 300  | Cooperative Education II                              | 4                      | 2 | 3 | 5 | 5 | 3 | 4 | 5 | 4 | 4  | 4  |
| ELE 495  | Senior Design Project                                 | 5                      | 4 | 5 | 4 | 5 | 5 | 4 | 5 | 5 | 5  | 5  |
| BSD - 1  | Departmental Elective                                 |                        |   |   |   |   |   |   |   |   |    |    |
| BSD - 2  | Departmental Elective                                 |                        |   |   |   |   |   |   |   |   |    |    |
| BSD - 3  | Departmental Elective                                 |                        |   |   |   |   |   |   |   |   |    |    |
| İYD - 3  | Second Foreign Language II                            | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| OEG 400  | Cooperative Education III                             | 5                      | 2 | 4 | 5 | 5 | 3 | 4 | 5 | 5 | 5  | 5  |
| BSD - 4  | Departmental Elective                                 |                        |   |   |   |   |   |   |   |   |    |    |
| FSD - 1  | Faculty Technical Elective                            |                        |   |   |   |   |   |   |   |   |    |    |
| BSD - 5 or FSD - 2   | Departmental or Faculty Elective                      |                        |   |   |   |   |   |   |   |   |    |    |
| ÜSD - 1  | Non-technical Elective                                |                        |   |   |   |   |   |   |   |   |    |    |
| İYD - 4  | Second Foreign Language IV                            | 1                      | 1 | 1 | 1 | 1 | 3 | 5 | 1 | 1 | 1  | 1  |
| ELE 401  | Linear Systems  | 5                      | 1 | 1 | 2 | 5 | 3 | 1 | 3 | 3 | 3  | 2  |
| ELE 402  | Control Systems II                                    | 5                      | 1 | 1 | 2 | 5 | 3 | 1 | 3 | 3 | 3  | 2  |

|           |  |   |   |   |   |   |   |   |   |   |   |   |
|-----------|--|---|---|---|---|---|---|---|---|---|---|---|
| ELE 403   | Nonlinear Systems                        | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 404   | Digital Control Systems                  | 5 | 3 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 405   | Industrial Control Systems               | 5 | 3 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 409   | Industrial Management for Engineers      | 0 | 0 | 0 | 5 | 3 | 5 | 4 | 5 | 3 | 4 | 0 |
| ELE 411   | Robotics                                 | 5 | 2 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 412   | Mechatronic Systems Design               | 5 | 2 | 5 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 412 L | Mechatronic Systems Design Lab.          | 5 | 5 | 5 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 413   | Design of Electrical Machines            | 5 | 2 | 4 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 414   | Fuzzy Logic                              | 5 | 1 | 4 | 1 | 5 | 1 | 3 | 3 | 4 | 5 | 4 |
| ELE 415   | Driver Systems                           | 5 | 2 | 4 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 416   | Intelligent Systems                      | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 421   | Semiconductor Circuit Technology         | 4 | 2 | 2 | 3 | 2 | 3 | 4 | 3 | 4 | 1 | 3 |
| ELE 422   | CMOS VLSI Design                         | 5 | 1 | 4 | 3 | 5 | 3 | 1 | 3 | 3 | 3 | 4 |
| ELE 423   | Industrial Electronics                   | 2 | 1 | 3 | 5 | 3 | 4 | 1 | 4 | 3 | 3 | 3 |
| ELE 424   | Circuit Synthesis                        | 2 | 1 | 3 | 5 | 3 | 4 | 1 | 4 | 3 | 3 | 3 |
| ELE 427   | Instrumentation and Experimental Methods | 5 | 5 | 4 | 3 | 5 | 3 | 1 | 3 | 3 | 3 | 4 |
| ELE 428   | Superconductor Electronics I             | 5 | 3 | 4 | 3 | 5 | 3 | 1 | 3 | 3 | 3 | 4 |
| ELE 429   | Superconductor Electronics II            | 5 | 3 | 4 | 3 | 5 | 3 | 1 | 3 | 3 | 3 | 4 |
| ELE 430   | Nonlinear Electronics for Communications | 5 | 3 | 4 | 3 | 5 | 3 | 1 | 3 | 3 | 3 | 4 |
| ELE 431   | Microwaves                               | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 432   | Antennas and Propagation                 | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 441   | Biomedical Engineering                   | 5 | 3 | 2 | 1 | 5 | 3 | 2 | 4 | 3 | 3 | 5 |
| ELE 442   | Medical Imaging Systems                  | 5 | 2 | 2 | 2 | 4 | 2 | 3 | 4 | 4 | 5 | 4 |
| ELE 451   | Optics                                   | 5 | 3 | 2 | 1 | 5 | 3 | 2 | 3 | 3 | 4 | 3 |
| ELE 452   | Photonics                                | 5 | 3 | 2 | 1 | 5 | 3 | 2 | 3 | 3 | 4 | 3 |
| ELE 453   | Optical Communications                   | 5 | 3 | 2 | 1 | 5 | 3 | 2 | 3 | 3 | 4 | 3 |
| ELE 455   | Fourier Optics and Holography            | 5 | 2 | 2 | 1 | 5 | 3 | 2 | 3 | 3 | 4 | 3 |
| ELE 457   | Solar Energy Systems                     | 5 | 3 | 2 | 1 | 5 | 3 | 2 | 3 | 3 | 4 | 3 |
| ELE 461   | Wireless Communications                  | 5 | 1 | 4 | 1 | 5 | 1 | 3 | 3 | 4 | 5 | 4 |
| ELE 462   | Communication Systems                    | 5 | 1 | 4 | 1 | 5 | 1 | 3 | 3 | 4 | 5 | 4 |
| ELE 463   | Communication Networks                   | 4 | 1 | 4 | 1 | 4 | 2 | 4 | 4 | 4 | 5 | 4 |
| ELE 464   | Digital Communications                   | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 465   | Radar Systems                            | 5 | 1 | 2 | 2 | 5 | 3 | 3 | 3 | 4 | 4 | 3 |
| ELE 467   | Information Security and Cryptography    | 5 | 1 | 4 | 1 | 5 | 1 | 3 | 3 | 4 | 5 | 4 |
| ELE 469   | Communication Network Optimization       | 5 | 2 | 4 | 4 | 5 | 1 | 3 | 3 | 2 | 4 | 5 |
| ELE 471   | Detection and Estimation Theory          | 5 | 1 | 4 | 1 | 5 | 1 | 3 | 3 | 4 | 5 | 4 |
| ELE 472   | Information Theory                       | 5 | 1 | 4 | 1 | 5 | 1 | 3 | 3 | 4 | 5 | 4 |
| ELE 473   | Digital Image Processing                 | 5 | 1 | 3 | 1 | 5 | 3 | 3 | 3 | 3 | 3 | 3 |
| ELE 474   | Digital Signal Processing                | 5 | 1 | 3 | 1 | 5 | 3 | 3 | 3 | 3 | 3 | 3 |
| ELE 475   | Spatial Array Signal Processing          | 5 | 2 | 3 | 2 | 1 | 3 | 3 | 2 | 3 | 3 | 4 |
| ELE 480   | Introduction to Estimation               | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 4 | 3 | 3 | 2 |
| ELE 481   | Power Systems Analysis I                 | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 482   | Power Systems Analysis II                | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 483   | Electric Market                          | 1 | 0 | 0 | 3 | 0 | 4 | 3 | 5 | 4 | 4 | 1 |
| ELE 484   | Yüksek Gerilim Kesicileri                | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 485   | Energy Distribution I                    | 5 | 1 | 4 | 2 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| ELE 486   | Energy Distribution II                   | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 487   | Energy Lines                             | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 488   | Lighting Techniques                      | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 489   | Electromechanical Energy Conversion      | 5 | 1 | 1 | 1 | 5 | 3 | 1 | 3 | 3 | 3 | 2 |
| ELE 494   | Industrial Senior Design Project         | 4 | 5 | 5 | 5 | 5 | 4 | 4 | 3 | 4 | 4 | 5 |
| ELE 495   | Senior Design Project                    | 4 | 5 | 5 | 5 | 5 | 4 | 4 | 3 | 4 | 4 | 5 |
| ELE 498   | Free Research Course I                   | 5 | 2 | 2 | 1 | 5 | 3 | 2 | 3 | 5 | 3 | 2 |
| ELE 499   | Free Research Course II                  | 5 | 2 | 2 | 1 | 5 | 3 | 2 | 3 | 5 | 3 | 2 |