COMPUTER ENGINEERING BACHELOR DEGREE PROGRAM INFORMATION

General Information	TOBB ETÜ Computer Engineering Program, founded in 2004 gave its first graduates in 2008. There are currently 13 faculties in the department. The faculty does research mostly in the areas of computer architecture, cryptography, computer security, human computer interaction, computer vision, image processing, data mining, bioinformatics, computational geometry, algorithmic game theory, theoratical computer science, robotic, and software engineering. In order to qualify for the program the student must pass or obtain expemtion 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.
Program Purpose	The purpose of the B.S. Program in Computer Engineering is to educate successful engineers that are capable of leadership, and are strong in adapting to the ever-changing world.
Degree Earned	Bachelor of Science in Computer Engineering
Level of Degree Earned	Computer Engineering is a First-Cycle (Bachelors Degree – EQF 6) program.
Requirements and Rules of the Degree Earned	Graduation requirements are defined according to Article 45 of the Undergraduate Education and Examination Regulation (link: http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&MevzuatIliski=0&sourceXmlSearch=). For graduation the student should a) successfully complete 283 ECTS credits including the three Cooperative Education semesters within the maximum allowable time period b) obtain a GPA of 2.00/4.00, c) satisfy the English proficiency condition.
Registration Admission Requirements	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: http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&MevzuatIliski=0&sourceXmlSearch=)
Recognition of Prior Learning	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. In case of approval of subtitution, 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.
Examinations, Assessment and Grading	Evaluation and assessment methods used for each course are defined according to Article 22 of the Undergraduate Education and Examination Regulation (link: http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&MevzuatIliski=0&sourceXmlSearch=). 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.
Teaching Style	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 educaton methods.
Graduation Requirements	Graduation requirements are defined according to Article 45 of the Undergraduate Education and Examination Regulation (link: http://mevzuat.basbakanlik.gov.tr/Metin.Aspx?MevzuatKod=8.5.15287&MevzuatIliski=0&sourceXmlSearch=). For graduation the student should a) successfully complete the 283 ECTS credits including the three Cooperative Education semesters within the maximum allowable time period b) obtain a GPA of 2.00/4.00, c) satisfy the English proficiency condition.
Occupational Profiles of Graduated-Employment Opportunities	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 Informatics, Defense, Space/Aviation, Telecommunications and Software industries. 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&D/Design, Software or Test engineers. A 10% of our graduates have either founded their hi-tech start-up companies or work in their family ventures.
Transition to a Upper Degree	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:https://www.etu.edu.tr/tr/enstitu/fen-bilimleri-enstitusu/basvuru-bilgileri)

NQF-HETR PROGRAM QUALIFICATION MATRIX				PROGRAM QUALIFICATIONS											
Program : Computer Engineering															
Related NQF-HETR Core Field: Engineering (Academic) - Bachelor Degree				1	2	3	4	5	6	7	8	9	10	11
	INFORMATION	Theoretical - Factual	Has the infrastructure in mathematics, science and engineering related to their branches.	X	X			X				X		X
	SKILLS	Cognitive - Applied	Uses mathematics, science and their theoretical and practical knowledge in their fields for engineering solutions.	X	X	X	X	X				X		X
			Identifies, defines, formulates and solves engineering problems, selects and applies appropriate analytical and modal techniques for this purpose.	X	X			X				X		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	X	X	X					X		X
			Selects and uses the modern techniques and tools necessary for engineering applications.		X		X		X			X		X
			Designs test cases, gathers data, analyzes and interprets data collection results.		X	X		X						X
CORE AREA QUALIFICATIONS	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			X		X	
		Learning Competence	Gains access to information and research resources for this purpose, using databases and other sources of information.		X		X	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	X	X	X	X				X		X
			Identifies, defines, formulates and solves engineering problems, selects and applies appropriate analytical and modal techniques for this purpose.	X	X		X	X				X		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	X	X	X	X				X		X
			Selects and uses the modern techniques and tools necessary for engineering applications.	X	X	X	X	X				X		X
			Works effectively on individual and multidisciplinary teams.	X				X						
		Communication and Social Competence	Uses computer and communication technology effectively.		X			X						
			Communicates verbally and in writing, using at least one foreign language at least at European Language Portfolio B1 General Level.							X		X		X
			Communicates using technical drawing.							X	X			X
			Gains access to information and research resources for this purpose, using databases and other sources of information.		X		X	X			X		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	X	X	X					X		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				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		X							X	

Computer Engineering Program Qualifications

1	The ability of analytical thinking
2	The ability of developing efficient algorithmic solutions to real-life problems
3	The ability of adapting new technologies
4	The ability of designining software systems that meet given requirements
5	The ability of applying mathematics, science and engineering knowledge
6	The ability of conducting interdisciplinary studies
7	To have professional and ethical responsibilities
8	To ability to inteact efficiently in Turkish, English and a second foreign language
9	To have a solid understanding of the impact of engineering solutions in a global, economic, environmental, and social context
10	To have the ability to engage in life-long learning
11	The ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Program Qualifications Course Matrix of Computer Engineering		Program Qualifications										
Kodu	Ders Adı	1	2	3	4	5	6	7	8	9	10	11
BİL 103	Inroduction to Computer Science	5	5	5	4	3	1	5	1	5	5	5
BİL 113	Computer Programming I	5	5	5	5	4	1	3	1	3	5	5
MAT 101	Mathematics I	5	3	2	1	5	2	1	1	1	3	3
FİZ 101	Physics I	5	3	2	1	5	2	1	1	1	3	5
FİZ 101L	Physics Lab I	5	3	2	1	5	2	1	1	1	3	5
TÜR 101	Turkish Language I	1	1	1	1	1	2	1	5	1	1	1
İNG 001	English I	1	1	1	1	1	3	1	5	1	1	1
BİL 211	Computer Programming II	5	5	5	5	4	1	3	1	3	5	5
BİL 132	Discrete Math for Computer Science	5	5	2	2	5	1	2	1	2	5	5
MAT 102	Mathematics II	5	3	2	1	5	2	1	1	1	3	3
FİZ 102	Physics II	5	3	2	1	5	2	1	1	1	3	5
FİZ 102L	Physics Lab II	5	3	2	1	5	2	1	1	1	3	5
TÜR 102	Turkish Language II	1	1	1	1	1	2	1	5	1	1	1
İNG 002	English II	1	1	1	1	1	3	1	5	1	1	1
BİL 133	Combinatorics and Graph Theory	5	5	2	2	5	1	2	1	2	5	5
BİL 212	Data Structures	5	5	5	5	4	1	3	1	3	5	5
BİL 264	Logic Circuit Design	5	5	5	2	5	4	2	1	3	3	5
BİL 264L	Logic Circuit Design Lab	5	5	5	2	5	4	2	1	3	3	5
MAT 203	Introduction to Linear Algebra and Differensial Equations	5	3	2	1	5	2	1	1	1	3	3
AİT 201	Revolutions of Ataturk and History of Turkish Rep I	1	1	1	1	1	2	1	5	1	1	1
İNG 003	English Writing Skills	1	1	1	1	1	3	1	5	1	1	1
BİL 214	Systems Programming	5	5	5	5	4	1	3	1	3	5	5
BİL 334	Formal Languages and Automata	5	5	2	2	5	1	2	1	2	5	5
BİL 361	Computer Architecture and Organization	5	5	5	2	5	4	2	1	5	3	5
İKT 105	Introduction to Economics	5	2	2	1	5	5	4	1	5	2	1
OEG 101	Introduction to CoOP	1	1	1	1	1	3	5	1	1	1	1
AİT 202	Revolutions of Ataturk and History of Turkish Rep II	1	1	1	1	1	2	1	5	1	1	1
İNG 004	English Presentation Skills	1	1	1	1	1	3	1	5	1	1	1
BİL 331	Algorithm Analysis	5	5	2	2	5	1	2	1	2	5	5
BİL 395	Programming Languages	5	5	2	2	5	1	2	1	2	5	5
BİL 481	Software Engineering	5	5	5	5	4	5	5	1	3	5	5
END 213	Probability and Statistics I	5	1	1	1	4	3	2	1	3	4	3
UGİ 315	Entrepreneurship and Leadership	1	1	1	1	1	5	5	5	5	1	1
İYD 1	Second Foreign Language I	1	1	1	1	1	3	1	5	1	1	1
OEG 200	CoOP I	3	5	5	5	5	5	5	5	1	4	5
BİL 372	Database Management Systems	5	5	5	5	5	4	2	1	5	3	5
BİL 461	Operating Systems	5	5	5	5	5	4	2	1	5	3	5
BİLİM SD	Science Elective											
BSD-1	Departmental Elective I											
İYD 2	Second Foreign Language II	1	1	1	1	1	3	1	5	1	1	1
OEG 300	CoOP II	3	5	5	5	5	5	5	5	1	4	5
BİL 452	Data Communication and Computer Networks	5	5	5	5	5	4	2	1	5	3	5
BİL 495	Innovative Computer Applications	5	5	5	5	4	5	5	5	3	5	5
FSD	Engineering Elective											
BSD-2	Departmental Elective II											
BSD-3	Departmental Elective III											
İYD 3	Second Foreign Language III	1	1	1	1	1	3	1	5	1	1	1
OEG 400	CoOP III	3	5	5	5	5	5	5	5	1	4	5
BİL 496	Senior Project	5	5	5	5	4	5	5	5	3	5	5
BSD-4	Departmental Elective IV											
BSD-5	Departmental Elective V											
ÜSD	Social Elective											
İYD 4	Second Foreign Language IV	1	1	1	1	1	3	1	5	1	1	1