



4.3 Programme details: (e.g. modules or units studied), and the individual grades/marks/credits obtained:

Code	Course Name	Course Category	Credit	Grade	ECTS	Credit
<b>Semester 1</b>						
BSM 101	INTRODUCTION TO COMPUTER ENGINEERING	Compulsory	1	DD	5	
MAT 113	LINEAR ALGEBRA	Compulsory	2	DD	3	
BSM 105	INFORMATION TECHNOLOGIES	Compulsory	3	DD	4	
FIZ 111	PHYSICS I	Compulsory	3	DD	6	
MAT 111	MATHEMATICS I	Compulsory	4	DD	6	
BSM 103	ALGORITHMS AND PROGRAMMING I	Compulsory	3	AA	5	
TUR 101	TURKISH LANGUAGE	Compulsory	4	CB	4	
<b>Semester 2</b>						
FIZ 112	PHYSICS II	Compulsory	3	DD	6	
IST 108	PROBABILITY AND STATISTICS	Compulsory	3	DD	4	
BSM 104	WEB TECHNOLOGIES	Compulsory	3	BB	4	
MAT 112	MATHEMATICS II	Compulsory	4	AA	6	
BSM 102	ALGORITHMS AND PROGRAMMING II	Compulsory	3	AA	5	
DIL 102	ENGLISH	Compulsory	4	BB	4	
<b>Semester 3</b>						
BSM 203	LOGIC CIRCUITS	Compulsory	3	BA	5	
BSM 207	DATA STRUCTURES	Compulsory	3	BB	5	
BSM 201	ELECTRIC CIRCUIT FUNDAMENTALS	Compulsory	2	DC	3	
MAT 217	NUMERICAL ANALYSIS	Compulsory	3	CC	5	
MAT 211	DIFFERENTIAL EQUATIONS	Compulsory	4	DD	6	
BSM 205	OBJECT ORIENTED PROGRAMMING	Compulsory	4	CC	6	
ATA 203	PRINC.OF ATATÜRK AND HISTORY OF TURKISH REVOLUTION	Compulsory	4	CC	4	
<b>Semester 4</b>						
BSM 208	CONCEPTS OF PROGRAMMING LANGUAGES	Compulsory	3	CC	5	
BSM 210	DISCRETE COMPUTATIONAL STRUCTURES	Compulsory	3	CB	6	
BSM 204	OBJECT ORIENTED ANALYSIS AND DESIGN	Compulsory	3	CC	6	
BSM 206	COMPUTER ORGANISATION	Compulsory	3	DC	6	
BSM 202	ELECTRONICS CIRCUITS AND LABORATORY	Compulsory	4	DD	7	
<b>Semester 5</b>						
BSM 301	FORMAL LANGUAGES AND ABSTRACT MACHINES	Compulsory	3	CB	5	
BSM 303	DATABASE MANAGEMENT SYSTEMS	Compulsory	4	CC	7	
BSM 307	SIGNALS AND SYSTEMS	Compulsory	2	DD	4	
ORT 025	PROJECT MANAGEMENT AND ENTREPRENEURSHIP	Elective	2	DC	2	
BSM 309	OPERATING SYSTEMS	Compulsory	3	BB	6	
BSM 305	DATA COMMUNICATION	Compulsory	3	CB	5	
<b>Semester 6</b>						
BSM 306	SOFTWARE ENGINEERING	Compulsory	3	CB	5	
BSM 308	SYSTEM PROGRAMMING	Compulsory	3	CC	5	
BSM 302	MICROPROCESSOR SYSTEMS AND LABORATORY	Compulsory	4	DC	6	
ORT 010	BUSINESS MANAGEMENT	Elective	2	DC	2	
BSM 310	WEB PROGRAMMING	Compulsory	3	CC	6	
BSM 304	COMPUTER NETWORKS	Compulsory	3	DD	6	
<b>Semester 7</b>						
BSM 429	DATA MINING	Elective	3	CC	5	
BSM 423	PATTERN RECOGNITION	Elective	3	CB	5	
BSM 499	INTERNSHIP	Compulsory	1	YT	(-5)#	
BSM 421	COMPUTER GRAPHICS	Elective	3	CB	5	
BSM 401	COMPUTER ENGINEERING DESIGN	Compulsory	2	AA	8	
<b>Semester 8</b>						
BSM 422	COMPUTER VISION	Elective	3	CC	5	
BSM 438	COMPILER DESIGN	Elective	3	BA	5	
BSM 498	INTERNSHIP	Compulsory	1	YT	(-5)#	
BSM 428	ROBOTICS	Elective	3	DD	5	
BSM 498	SENIOR DESIGN PROJECT	Compulsory	4	CC	8	
<b>Total Credits</b>			140			
<b>Total ECTS Credits</b>			241			
<b>CGPA 2,12 out of 4.00</b>						

# Courses which are not included in GPA (10 ECTS)

4.4 Grading scheme and, if available, grade distribution guidance:

For each course taken, the student is given one of the following grades by the lecturer. The letter grades, grade points and percentage equivalents are given below:

AA 4.00	BA 3.50	BB 3.00	CB 2.50	CC 2.00	DC 1.50	DD 1.00	FF 0.00
YT -	YZ -	MU -	GR 0.00				

Therefore,

- AA, BA, BB, CB and CC grades are achievement grades.
- DC and DD grades are conditional achievement grades for the undergraduate students.
- The grade DZ is given if a student doesn't fulfill the attendance and/or application requirements of the course.
- The grade GR is given to the student who doesn't take the final examination.
- DZ and GR grades are counted as FF grade in CGPA.
- The grade YT is given to the student who is successful in taking non-credit courses. YT grades are also given for the courses which were completed in another university before the transfer of the student concerned.
- The grade YZ is given to the student who is unsuccessful in non-credit courses.
- The grade MU is given to the student who is found successful in the examination for exemption conducted by the department concerned for courses determined by the University Senate.

W. GRA. : The grade which is obtained by multiplying the credit and the point counted.

SEM. TOT. CR. : Total credits of the courses for the semester concerned.

SEM. TOT. W. GRA. : Total weighted grades for the semester concerned.

SEM. GRA. POINT AVG. : The average which is obtained by dividing the total weighted grades to the total credits for the semester concerned.

GEN. TOT. CR. : Total credits of the courses up to end of the semester concerned.

GEN. TOT. W. GRA. : Total weighted grades up to end of the semester concerned.

GEN. GRA. POINT AVG. : The grade point average up to end of the semester concerned.

CUM. GRA. POINT AVG. (CGPA) : The cumulative grade point average at the end of the completion of bachelor's degree period. Only the last grades were used for repeated courses in this computation.

4.5 Overall classification of the qualification (in original language):

YETERLİ

YETERLİ : CGPA of 2,00-2,99

ONUR : CGPA of 3,00-3,49

YÜKSEK ONUR : CGPA of 3,50-4,00

5 - INFORMATION ON THE FUNCTION OF THE QUALIFICATION

5.1 Access to further study:

May continue with master or doctoral studies in the same or similar scientific areas, which may accept students from Computer Engineering.

5.2 Professional status (if applicable)

This degree enables the graduate to exercise the profession

6 - ADDITIONAL INFORMATION

6.1 Additional information:

Department web site : [www.ebs.sakarya.edu.tr](http://www.ebs.sakarya.edu.tr)

6.2 Further information sources:

University web site : [www.sakarya.edu.tr/en/](http://www.sakarya.edu.tr/en/)

The Council of Higher Education web site : [www.yok.gov.tr](http://www.yok.gov.tr)

The Turkish Enic-Naric web site : [www.enic-naric.net/member.asp?country=Turkey](http://www.enic-naric.net/member.asp?country=Turkey)

7 - CERTIFICATION OF THE SUPPLEMENT

7.1 Date : 17.06.2013

7.2 Name and Signature : Fatma AYDIN

7.3 Capacity : Registrar of Sakarya University

7.4 Official stamp or seal :

8 - INFORMATION ON THE NATIONAL HIGHER EDUCATION SYSTEM

**Structure and Degree System**  
The basic structure of the Turkish National Education System consists of stages of non-compulsory pre-school education; compulsory primary (elementary and middle school) and secondary (high school) education; and higher education. Primary education begins at the age of 5.5 (66 months), lasts eight years and comprises elementary and middle school education, four years each. Secondary education is also four years and divided into two categories as "General High School Education" and "Vocational and Technical High School Education". The entry into these categories is through composite scores obtained from a centralized exam for secondary schools.  
Higher education system in Turkey is managed by the Council of Higher Education (CoHE, Yükseköğretim Kurulu-YÖK) which is an autonomous public body responsible for the planning, coordination, governance and supervision of higher education within the provisions set forth in the Constitution of the Turkish Republic and the Higher Education Law. Both state and non-profit foundation universities are founded by law and subjected to the Higher Education Law and to the regulations enacted in accordance with it.  
Higher education in Turkey comprises all post secondary higher education programmes, consisting of short, first, second, and third cycle degrees in terms of the terminology of the Bologna Process. The structure of Turkish higher education degrees is based on a two-tier system, except for dentistry, pharmacy, medicine and veterinary medicine programmes which have a one-tier system. The duration of these one-tier programmes is five years (300 ECTS) except for medicine which lasts six years (360 ECTS). The qualifications in these one-tier programmes are equivalent to the first cycle (bachelor's) plus second cycle (master's) degree. Undergraduate level of study consists of short cycle (associate's)-(önlisans derecesi) and first cycle (bachelor's)-(lisans derecesi) degrees which are awarded after successful completion of full-time two-year (120 ECTS) and four-year (240 ECTS) study programmes, respectively.  
Graduate level of study consists of second cycle (master's)-(yüksek lisans derecesi) and third cycle (doctorate)-(doktora derecesi) degree programmes. Second cycle is divided into two sub-types named as master without thesis and master with thesis. Master programmes without thesis require 60 to 90 ECTS credits and consist of courses and a semester project. 60 ECTS non-thesis master programmes are exceptional, and exist in a few disciplines. The master programmes with a thesis require 90 to 120 ECTS credits, which consists of courses, a seminar, and a thesis. Third cycle (doctorate) degree programmes are completed having earned a minimum of 180 ECTS credits, which consists of completion of courses, passing a proficiency examination and a doctoral thesis. Specialization in medicine, accepted as equivalent to third cycle programmes are carried out within the faculties of medicine, university hospitals and the training hospitals operated by the Ministry of Health.  
Universities consist of graduate schools (institutes) offering second cycle (master's) and third cycle (doctorate) degree programmes, faculties offering first cycle (bachelor's degree) programmes, four-year higher schools offering first cycle (bachelor's) degree programmes with a vocational emphasis and two-year vocational schools offering short cycle (associate's) degree programmes of a strictly vocational nature.  
Since 2003, first cycle degree holders may apply directly to third cycle (doctorate) programmes if their performance at the first cycle degree level is exceptionally high and their national central Graduate Education Entrance Examination (ALEB) score is also high and their application is approved. For these students, theoretical part of the programmes requires additional courses of 60 ECTS credits. Admission of national students to short and first cycle degree programmes is centralized and based on a nationwide one/two-stage examination(s) conducted by an autonomous public body (Assessment, Selection and Placement Centre-ÖSYM). Candidates gain access to institutions of higher education based on their composite scores consisting of the scores on the selection examination and their high school grade point averages. Admission to graduate programmes is directly conducted by the higher education institutions (HEIs) within the frameworks of the publicly available national and institutional regulations. Admission of foreign students to programmes at all levels of higher education can be done by direct applications of candidates to HEIs based on publicly available national and institutional regulations.  
The Turkish National Qualifications Framework for Higher Education (TYYÇ): The National Qualifications Framework for Higher Education in Turkey (TYYÇ) developed with reference to the QF for European Higher Education Area and the EQF for lifelong learning was adopted by the CoHE in 2010. The framework has been developed as a part of a single national qualifications framework, which would eventually consist of 8 level national framework covering all levels of education on completion of the ongoing work at the national level, in which the higher education levels lie on levels between 5 to 8. The levels of the TYYÇ with reference to the European overarching qualifications frameworks as well as that to ECTS credits and student workload are shown below.