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| <b>Bilkent University</b>   |  |   | <b>bilkent.edu.tr</b>   |
| <b>Diploma Supplement</b>   |  | Diploma No: [REDACTED]  |   |
| 06800 Bilkent, Ankara, Türkiye  |  | Diploma Date: <b>14.07.2023</b>   |   |

The purpose of the Diploma Supplement is to provide sufficient independent data to improve the international "transparency" and fair academic and professional recognition of qualifications (diplomas, degrees, certificates, etc.). It is designed to provide a description of the nature, level, context, content and status of the studies that were pursued and successfully completed by the individual named on the original qualification to which this supplement is appended. It is free from any value judgements, equivalence statements or suggestions about recognition. This Diploma Supplement model was developed by European Commission, Council of Europe and UNESCO.

### 1. INFORMATION IDENTIFYING THE HOLDER OF THE QUALIFICATION

- 1.1. Family name(s) : [REDACTED]  
1.2. Given name(s) : [REDACTED]  
1.3. Date of birth : **30.09.1996**  
1.4. Student identification number : [REDACTED]

### 2. INFORMATION IDENTIFYING THE QUALIFICATION

- 2.1. Name of the qualification :  
**Bilgisayar Mühendisliği, Lisans**
- 2.2. Main field(s) of study for qualification :  
**Computer Engineering**
- 2.3. Name and status of awarding institution :  
İ. D. Bilkent Üniversitesi ; Kar Amacı Gütmeyen ve Devlet Tarafından Tanınan Vakıf Üniversitesi  
İ. D. Bilkent University ; Non-profit and State Recognized Foundation University
- 2.4. Name and status of institution administering studies :  
Same as 2.3.
- 2.5. Language(s) of instruction/examination :  
**100% English**

### 3. INFORMATION ON THE LEVEL OF THE QUALIFICATION

- 3.1. Level of qualification :  
**First Cycle (Bachelor's Degree)**
- 3.2. Official length of programme :  
**4 years (240 ECTS) (excluding English Preparatory School), 2 semesters per year, 16 weeks per semester**
- 3.3. Access requirements :  
**High school diploma.**  
**Admission to higher education is based on a nation-wide Student Selection Examination (ÖSYM)**  
**Proficiency in English: IELTS score of at least 6.5 (min. 5.5 in each section), TOEFL iBT score of 87 or Bilkent University English Language Proficiency Examination (PAE) score of C.**

#### 4. INFORMATION ON THE CONTENTS AND RESULTS GAINED

##### 4.1. Mode of study :

Full-time

##### 4.2. Programme requirements :

###### Requirements

This degree is awarded to students who have successfully completed all courses in the curriculum, including two one-month summer training periods and have a minimum CGPA of 2.00/4.00.

###### Objectives

\* To provide a strong background in the principles and practices of computer engineering, fostering intellectual maturity, emphasizing knowledge that is relevant to technological and business needs in a competitive global environment, and ready students for advanced studies.

\* To prepare each student for a successful career in industry, academia, or government by teaching the discipline in a way that emphasizes creative and critical thinking, design and communication skills, collaboration, professional and ethical responsibility, and life-long learning.

##### 4.3. Programme details and the individual grades/marks/credits obtained :

| Code               | Course Name                                   | Course Category | Bilkent Credits | ECTS Credits | Grade |
|--------------------|---|-----------------|-----------------|--------------|-------|
| <b>Semester 1</b>  |   |                 |                 |              |       |
| GE 100             | Orientation                                   | Required        | 1               | 2            | A-    |
| TURK 101           | Turkish I                                     | Required        | 2               | 3.5          | C+    |
| <b>Semester 2</b>  |   |                 |                 |              |       |
| CS 101             | Algorithms and Programming I                  | Required        | 4               | 7            | C+    |
| PHYS 101           | General Physics I                             | Required        | 4               | 6            | C     |
| TURK 102           | Turkish II                                    | Required        | 2               | 3.5          | B     |
| <b>Semester 3</b>  |   |                 |                 |              |       |
| CS 102             | Algorithms and Programming II                 | Required        | 4               | 7            | D     |
| ENG 101            | English and Composition I                     | Required        | 3               | 6            | B     |
| MATH 101           | Calculus I                                    | Required        | 4               | 7            | C     |
| MBG 110            | Introduction to Modern Biology                | Required        | 3               | 6            | C     |
| <b>Semester 4</b>  |   |                 |                 |              |       |
| ENG 102            | English and Composition II                    | Required        | 3               | 6            | A-    |
| MATH 132           | Discrete and Combinatorial Mathematics        | Required        | 3               | 6            | D+    |
| <b>Semester 5</b>  |   |                 |                 |              |       |
| CS 201             | Fundamental Structures of Computer Science I  | Required        | 3               | 6            | C-    |
| GE 250             | Collegiate Activities Program I               | Required        | 0               | 1            | S     |
| MATH 102           | Calculus II                                   | Required        | 4               | 7            | D     |
| CS 202             | Fundamental Structures of Computer Science II | Required        | 3               | 6            | B     |
| <b>Semester 6</b>  |   |                 |                 |              |       |
| CS 223             | Digital Design                                | Required        | 4               | 6.5          | D+    |
| GE 251             | Collegiate Activities Program II              | Required        | 1               | 2            | A     |
| <b>Semester 7</b>  |   |                 |                 |              |       |
| CS 315             | Programming Languages                         | Required        | 3               | 5            | B+    |
| CS 319             | Object-Oriented Software Engineering          | Required        | 4               | 6.5          | C     |
| HIST 200           | History of Turkey                             | Required        | 4               | 6.5          | B+    |
| MATH 230           | Probability and Statistics for Engineers      | Required        | 3               | 5            | D     |
| PHIL 202           | Ethics  | Elective        | 3               | 5            | C+    |
| GE 301             | Science Technology and Society                | Required        | 2               | 3.5          | C-    |
| HUM 111            | Cultures Civilizations and Ideas I            | Required        | 3               | 5            | C     |
| <b>Semester 8</b>  |   |                 |                 |              |       |
| CS 299             | Summer Training I                             | Required        | 0               | 7.5          | S     |
| CS 353             | Database Systems                              | Required        | 3               | 5            | D     |
| <b>Semester 9</b>  |   |                 |                 |              |       |
| CS 224             | Computer Organization                         | Required        | 4               | 6.5          | D     |
| CS 453             | Application Lifecycle Management              | Elective        | 3               | 5            | C+    |
| EEE 391            | Basics of Signals and Systems                 | Required        | 3               | 5            | C-    |
| CS 458             | Software Verification and Validation          | Elective        | 3               | 5            | C+    |
| <b>Semester 10</b> |   |                 |                 |              |       |
| CS 399             | Summer Training II                            | Required        | 0               | 7.5          | S     |
| CS 491             | Senior Design Project I                       | Elective        | 3               | 6.5          | A-    |
| <b>Semester 11</b> |   |                 |                 |              |       |
| CS 342             | Operating Systems                             | Required        | 4               | 6.5          | D     |
| CS 413             | Software Engineering Project Management       | Elective        | 3               | 5            | C     |
| CS 492             | Senior Design Project II                      | Elective        | 3               | 6.5          | B     |
| PHYS 102           | General Physics II                            | Required        | 4               | 6.5          | C-    |
| HUM 112            | Cultures Civilizations and Ideas II           | Required        | 3               | 5            | C-    |
| <b>Semester 12</b> |   |                 |                 |              |       |
| MATH 225           | Linear Algebra and Differential Equations     | Required        | 4               | 6.5          | D     |
| <b>Semester 13</b> |   |                 |                 |              |       |
| ELIT 164           | Concepts in Literary Studies                  | Elective        | 3               | 5            | C+    |
| ENG 401            | Technical Report Writing and Presentation     | Required        | 2               | 5            | C+    |
| PSYC 100           | Introduction to Psychology                    | Elective        | 3               | 5            | B+    |
| <b>Semester 14</b> |   |                 |                 |              |       |
| CS 411             | Software Architecture Design                  | Elective        | 3               | 5            | C+    |



|               |                                      |          |     |     |       |
|---------------|--------------------------------------|----------|-----|-----|-------|
| IE 400        | Principles of Engineering Management | Required | 3   | 5   | D     |
| Semester 15   |                                      |          |     |     |       |
| CS 473        | Algorithms I                         | Required | 3   | 5   | D+    |
| Semester 16   |                                      |          |     |     |       |
| CS 476        | Automata Theory and Formal Languages | Required | 3   | 5   | C+    |
| MBG 222       | Fundamentals of Molecular Genetics   | Elective | 3   | 5   | C+    |
| *****         |                                      |          |     |     |       |
| TOTAL CREDITS |                                      |          | 133 | 249 | ***** |

#### 4.4. Grading scheme and grades :

The University grading system uses letter grades with pluses and minuses. Letter grades and their grade point equivalents are:

|         |         |         |         |         |
|---------|---------|---------|---------|---------|
| A+ 4.00 | B+ 3.30 | C+ 2.30 | D+ 1.30 | F 0.00  |
| A 4.00  | B 3.00  | C 2.00  | D 1.00  | FX 0.00 |
| A- 3.70 | B- 2.70 | C- 1.70 |         | FZ 0.00 |

The letter grades A+ and FX were instituted beginning with the 2010-2011 academic year. Additionally, the letter grade FZ introduced in 2012-2013 academic year spring semester.

The letter grades SE (Satisfactory - Extraordinary Circumstances) and UE (Unsatisfactory - Extraordinary Circumstances) were instituted with the 2019-2020 academic year spring semester and activated for that semester only.

Letter grades without grade point equivalents:

|   |  |
|---|--|
| I (Incomplete)                          | : Temporary grade signifying incomplete work; to be later replaced with another grade. |
| W (Withdraw)                            | : Student has withdrawn from the course before the end of the semester.                |
| T (Transfer)                            | : Student has taken the course at another program or another university.               |
| P (In Progress)                         | : Used for multi-semester courses.   |
| S (Satisfactory) and U (Unsatisfactory) | : Used for non-credit courses.   |

SE (Satisfactory - Extraordinary Circumstances): Student has exercised an option (given only on select semesters due to extraordinary circumstances) to convert a C or higher grade (for undergraduate programs), or a B or higher grade (for graduate programs), to a no-credit pass grade at the end of the semester.

UE (Unsatisfactory - Extraordinary Circumstances): Student has exercised an option (given only on select semesters due to extraordinary circumstances) to convert a C- or lower grade (for undergraduate programs), or a B- or lower grade (for graduate programs), to a no-credit fail grade at the end of the semester.

The semester grade point average (GPA) is computed as the sum of the products (Bilkent credits x quality points) divided by the sum of the Bilkent credits of courses in that semester.

The cumulative grade point average (CGPA) is an overall average computed as the sum of the products (Bilkent credits x quality points) of all the grades divided by the total number of Bilkent credits achieved.

#### 4.5. Overall classification of the qualification :

|                                |               |
|--------------------------------|---------------|
| Genel Not Ortalaması           | : 2.05 / 4.00 |
| Cumulative Grade Point Average | : 2.05 / 4.00 |

## 5. INFORMATION ON THE FUNCTION OF THE QUALIFICATION

### 5.1. Access to further study :

**May apply to second cycle programmes.**

### 5.2. Professional status :

**This degree enables the holder to exercise the profession.**

## 6. ADDITIONAL INFORMATION

### 6.1. Additional information :

\* The Registrar's Office e-mail: [registrar@bilkent.edu.tr](mailto:registrar@bilkent.edu.tr)

### 6.2. Further information sources :

- \* University website : <http://www.bilkent.edu.tr>
- \* Bilkent University Catalogue for Undergraduate and Graduate Programmes : <http://catalog.bilkent.edu.tr>
- \* The Council of Higher Education website : <http://www.yok.gov.tr>
- \* The Turkish ENIC-NARIC website : <http://www.enic-naric.net/members.asp?country=Turkey>
- \* YÖKAK/THEQC website: <https://yokak.gov.tr>
- \* TYÇTQF website: <https://www.mylk.gov.tr/index.php/en/turkiye-yeterlilikler-cercevesi>
- \* TYÇTQF-HE website: <http://www.tyyc.yok.gov.tr>

## 7. CERTIFICATION OF THE SUPPLEMENT

7.1. Date: 21.06.2023

7.2. Name and Signature: Şerife Tokulluoğlu

7.3. Capacity: The Registrar

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 noncompulsory 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 (ALES) 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 consists of 8 level national framework covering all levels of educations 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.

| Higher Education Levels/Cycles |         | AWARDS/ DEGREES | LENGTH (Year) | TOTAL ECTS CREDITS (Year x 60 ECTS) | TOTAL STUDENT WORKLOAD (h) (1 ECTS= 25-30h) |
|--------------------------------|---------|-----------------|---------------|-------------------------------------|---|
| QF-EHEA                        | EQF-LLL |                 |               |                                     |   |
| 3                              | 8       | 8               | 3 (min.)      | 180 (min.)                          | 4.500 – 5.400                               |
|                                |         |                 |               |                                     |   |
|                                |         |                 |               |                                     |   |
| 2                              | 7       | 7               | 1-2           | 60-120                              | 1.500 – 3.600                               |
| 1                              | 6       | 6               | 4             | 240                                 | 6.000 – 7.200                               |
| Short Cycle                    | 5       | 5               | 2             | 120                                 | 3.000 – 3.600                               |

