



Sam Houston State University
A Member of the Texas State University System

Contracts/Agreements Routing Approval Form

Purpose of Contract: Renew/update dual degree agreement with Firat Univeristy in Turkey

New Contract ☐ Renewal (Attach Original) ☒ TSUS General Counsel Last Reviewed Date: 06/05/2023

Originating Department/Division: 

Department Head Approval: _____
Signature and Date

Dean Approval: _____
Signature and Date

Vice President Approval:  7/28/23
Signature and Date

Vice President for Information Technology (if applicable. *All contracts involving technology, regardless of the direct impact to campus IT operations*)

Signature and Date

Vice President for Finance & Operations (if applicable.)

Signature and Date

Texas State University System – Legal Counsel Approval: ☒ Yes



**DUAL DIPLOMA BACCALAUREATE PROGRAM PROTOCOL
BETWEEN
FIRAT UNIVERSITY
AND
SAM HOUSTON STATE UNIVERSITY**



This present document certifies the International Dual Diploma Associate Program protocol between **Firat University**, with properly represented by its Rector, Prof. Dr. Fahrettin Gökteş, with legal residence in Firat Universitesi Kampusu, Rektörlük, 23119 Elazığ/Turkey which will be identified as FU on one side; and on the other side **Sam Houston State University** represented by its Provost and Senior Vice President of Academic Affairs Dr. Michael T. Stephenson with legal residence in 1831 University Avenue, Huntsville TX 77341-2088 which will be identified as SHSU.

**SECTION I
GENERAL CONDITIONS**

Article 1: Aim and Scope

The aim of this protocol is to establish the principles and conditions regarding the scope and implementation of FU and SHSU Dual Diploma Associate Program that provide Bachelor of Science Diploma in Software Engineering, which will be jointly awarded by Firat University and Sam Houston State University.

Both institutions have approached this protocol with the spirit of goodwill and friendship in order to encourage common understanding, close and beneficial relationships between the members of the societies to which they belong.

The protocol will be governed within the scope of Turkish Higher Education Council's "Regulation about the Foundation of Joint Education Programs of Higher Education Institutions" with Sam Houston State University.

Article 2: Precedent of Parties

Sam Houston State University is a multicultural institution whose mission is to provide excellence in continuing to improve the quality of education, academic research and service to its students as well as the appropriate entities at the Regional, State and International level. The university has seven academic Colleges and each has multiple departments. The Department of Computer Science is part of the College of Science & Engineering Technology and offers three Bachelor of Science, three Master of Science, and a Ph.D. program. The department of Computer Science offers undergraduate programs in 1) Computing Science with emphases in Computer Science, Information Systems, and Information Assurance and Security, 2) Software Engineering, and 3) Cybersecurity. At the graduate level, the department offers Master of Science programs in Computing and Data Science, Digital Forensics, and Information Assurance and Cybersecurity, and a Ph.D. program in Digital and Cyber Forensic Science. The graduate programs provide for the acquisition of advanced and specialized knowledge applicable to appropriate professional practice in each area and leads to academic research and the furtherance of knowledge and praxis.

Firat University aims to provide education and training in variety of fields in order to educate individuals who fulfill their tasks successfully, who admit the superiority of mind and science, who adopt the principles of contemporary civilization, who have internationally competitive knowledge and skills, and who are responsible and gifted. The university has been conducting studies so as to interpret, improve, protect and provide the prevalence of international cultures, develop explicit and clear management models that are responsible against their peers. The university has 16 academic Colleges, and each has multiple departments. In addition, there are 12 Technical Vocational Schools of Higher Education (community colleges) and 4 Institutes. The Department of Software Engineering is a part of the College of Technology and offers Bachelors, Masters,

and Ph.D. degrees in Software Engineering. Upon graduation with bachelor's degree, students earn the title of Software Engineer.

Article 3: Definitions

In this Protocol the following expressions bear the following meanings:

ABET	Accreditation Board for Engineering and Technology, Inc
ABITUR	German secondary school final examination
ACT	American College Testing
CAC	Computing Accreditation Commission (ABET)
DDAP	Dual Diploma Associate Program executed by FU and SHSU
FU	Firat University
FU-YOS	Exam for International Students conducted at Firat University
GCE	General Certificate of Education
IELTS	International English Language Testing System
MÜDEK	Association for Evaluation and Accreditation of Engineering Programs in Turkey
OSYS	Student Selection and Placement System.
SAT	Scholastic Aptitude Test and Scholastic Assessment Test
SHSU	Sam Houston State University
TOEFL	Test of English as a Foreign Language
TYT+ AYT	Higher Education Examination-Undergraduate Placement Examination
YDT	Foreign Language Test-Undergraduate Placement Examination
YOK	Turkish Higher Education Council
YOS	An entrance examination designed for foreign students wishing to study in Higher Education institutions in Turkey
2+2SE	Joint four-year undergraduate degree program leading to a Bachelor of Science degree in Software Engineering

Article 4: Objective

The objective of this protocol is the development of joint activities between FU and SHSU in Software Engineering by means of potential visits or academic exchanges of students and faculty and the development of a joint Dual Diploma Associate Program leading to a Bachelor of Science in Software Engineering jointly awarded by FU and SHSU. This protocol includes cooperative activities in the areas of:

- Teaching (Face to face and/or Remote)
- Research
- Information exchange

Article 5: Obligation of Parties

5.1. SHSU is committed to:

- Support the international collaborative protocol with FU
- Appoint a representative officer who, jointly with the representative officer of FU shall be responsible for the development, implementation, assessment, and compliance of the commitment of both institutions.
- Provide access to research, teaching and social/life campus resources for students and faculty engaged in collaborative activities under the terms of this protocol.
- Provide access to research and teaching distance education resources for students and faculty engaged in collaborative activities under the terms of this protocol.
- Provide necessary technical and professional personnel for the implementation of program

5.2. FU is committed to:

- Support the international collaborative protocol with SHSU
- Appoint a representative officer who, jointly with the representative officer of SHSU shall be responsible for the development, implementation, assessment, and compliance of the commitment of both institutions.
- Provide access to research, teaching and social/life campus resources for students and faculty engaged in collaborative activities under the terms of this protocol.
- Provide access to research and teaching distance education resources for students and faculty engaged in collaborative activities under the terms of this protocol.
- Provide necessary technical and professional personnel for the implementation of program

Article 6: Validity

This is an extension on the previous protocol. The duration of this protocol is five years to start in fall 2022. This protocol may be renewed in Fall 2027 for equal periods with the mutual consent of its participants.

Article 7: Funding

For the achievement of the objectives of this protocol the parties are committed to make the necessary efforts to obtain funding for continuously developing research, degree programs and academic activities. Such funding efforts include but are not limited to:

- Scholarships
- External scholarship funding
- Part time student employment
- Tuition waivers

SECTION II

2+2 UNDERGRADUATE DEGREE PROGRAM IN SOFTWARE ENGINEERING

Article 8: Description of the Program

The **Bachelor of Science degree program in Software Engineering** shall be a four-year undergraduate program compatible with the duration of similar degree programs in Turkey and in the United States.

The program shall include the following components:

- General education components that meet the general education requirements for FU and for SHSU
- Sufficient mathematics to meet the academic needs of students engaged in advanced classes
- Sufficient natural science to foster the internalization of scientific rigor in the development of new knowledge
- A core of computer science knowledge areas sufficient for professional activity
- Specialized courses in Software Engineering to meet the needs of emerging Software Engineering professionals.

The Bachelor of Science degree program in Software Engineering shall be designed to conform to the general academic and accreditation standards of both FU and SHSU and, in addition, shall conform to ABET/CAC/MÜDEK accreditation standards as applicable.

Article 9: Division of Responsibilities

FU is committed to:

- Providing general education courses appropriate to the needs of Turkish students.
- Providing mathematics and science support courses
- Providing core computer science knowledge areas.

SHSU is committed to:

- Providing general education courses
- Providing mathematics and science support courses
- Providing core computer science knowledge areas.
- Providing advanced Software Engineering coursework.

SECTION III STUDENT ADMISSION

Article 10: Determining the Quota

The DDAP quota for students who are Turkish citizens and who are not Turkish citizens will be determined by FU and declared to YOK and SHSU.

Article 11: Admission of Students who are Turkish Citizens

The placement and admission of the Turkish citizens' students to the DDAP will be made in accordance with the results of TYT+AYT administered by OSYS in Turkey and with the regulations and requirements that FU is subject to.

FU will follow up the procedures that are required by YOK for placing the program in TYT+AYT guidebook published by OSYS.

Article 12: Admission of Students who are not Turkish

The examination and diplomas that can be acceptable in admission of students who are not Turkish citizens to DDAP are indicated below. The approval of Turkish Higher Educational Council is also needed regarding the minimum levels of these examinations and diplomas.

Name of the Examination/Diploma Level	Score*
FU-YOS (Exam for International Students conducted at Firat University)	TBD by FU Senate
YOS (Basic Learning Skills Test in Foreign Student Examination administered by OSYS in the last two years)	Minimum 40 points
SAT	At least 1000 points in total or
ACT	At least 21 points or
GCE A level Certificate	At least 2 courses
ABITUR	At least 4 points or
Mature Certificate	-
French Baccalaureate	The high school graduation grade should be at least 12

*Rules are determined by Turkish Higher Education Council (YOK) for student transfers from abroad

Article 13: Student Transfer

Students will transfer at the end of successful completion of the first two years from FU to SHSU. The desired number for progression to the 3rd year is 10. If the number of students to be transferred is fewer than 10, both institutions will try to come to an appropriate resolution that will be for the benefit of the students.

It is possible for a student to transfer from DDAP to other equivalent programs in Turkey provided that his or her TYT+AYT score is not lower than the base score of the program that he or she would like to transfer to in that year and that he or she meets the other requirements envisaged in the regulations.

It may be possible for a student to transfer from the DDAP to another program at FU. Terms and conditions for transfer are determined by FU. It may be possible for a student to undertake the third and fourth year of study at a different US institution. This is only possible with the written

approval of both SHSU and the transferring US institution. This transfer is possible only if the university or college approves it and if it meets the requirements under regulations on transfers within undergraduate programs in the United States or by specific articulation protocols between SHSU and the transferring US institution.

SECTION IV EDUCATION

Article 14: Medium of Instruction and Foreign Language Requirement

The medium of instruction of DDAP is English. In order for the students to start taking courses in the first year of the 2+2 SE program, they should demonstrate their English proficiency. TOEFL, IELTS, YDT or FU English Proficiency examinations are required for English proficiency. Examinations other than these are not valid for English Proficiency Exam.

The students who have registered in the DDAP, have satisfied the minimum scores set by Firat University in the examinations stated above, and who want to be exempt from English preparatory class have to submit their official exam results before the semester beginning in the academic year in question to FU Registrar's Office and FU Office of International Affairs.

The students who cannot get the satisfactory score in English Proficiency Examinations register in English preparatory class of FU and are placed in a class appropriate for their levels. Students in DDAP preparatory class have compulsory attendance in accordance with FU regulations. The students are given maximum of 2 years for English preparatory education. The students who fail to meet the English language requirements at the end of their second year of the program may be placed to another program in Turkey by OSYS according to their TYT+AYT scores.

It is expected that students who successfully complete the first two years of the DDAP fulfill the admission requirements to transfer to SHSU, this includes the English language requirements set by SHSU (TOEFL iBT 79, IELTS 6.5, or Duolingo 105). Representatives from Firat University and SHSU will have the right to review admission requirements on an individual basis.

Article 15: Curriculum

The curriculum for the 2+2 SE program is specified in Appendices 1 and 2.

Article 16: Academic Regulations

A student whose registration is cancelled in FU or SHSU as a result of being academically unsuccessful, or due to any other reason, will also be expelled from the joint international dual diploma associate program and institutions/ establishments in question.

At the end of each year both institutions will provide documentation that indicates the academic progress of the students. FU and SHSU will maintain open and regular communication with each other through the representative officers concerning the student performance.

Students who fulfill the requirements of both institutions and earn the right to graduate are awarded separate Bachelor of Science diplomas by both FU and SHSU for the program in question. (Appendices 3 and 4)

Awarding of the diplomas are subject to the students meeting the academic requirements of both institutions.

Students enrolled in the DDAP shall conform to the academic regulations of FU during the first two years of the program and the academic regulations of SHSU in the third and fourth years.

**SECTION V
OTHER PROVISIONS****Article 17: Tuition Fees**

Students who are registered in the DDAP pay the tuition and fees determined by the Board of Trustees of FU during their studies at the FU. Students who are registered in the DDAP pay the tuition and fees determined by the Texas State University System during their studies at SHSU. The tuition fee for English preparatory class is determined by FU. The fees are submitted to YOK by FU in order to be placed in TYT+AYT guidebook. The cost of living of the students at SHSU is not included in the tuition fee.

Article 18: Scholarships

SHSU, in accordance with its policies and procedures, allocate a quota for students on scholarships in the DDAP during their residency at SHSU. The maximum number of students shall be no more than 20 at a time, with a goal of 10 per year. Also, there is no guarantee that any student shall receive a scholarship but that COSET will seek to fund up to 20 \$1000 scholarships per year for international exchange between FIRAT and SHSU including this 2+2 program. SHSU also has the right to award partial scholarships to students based on their success. The conditions for awarding and continuation of these scholarships are determined by SHSU.

Article 19: Exceptional Leave of Absence

Due to imperative reasons and by documenting it, a student may be given a leave for one semester or one academic year with the mutual agreement of both institutions. The duration of the leave is not counted towards the maximum education period. The total duration of leave used during education period cannot exceed the half of normal education period.

Article 20: Discipline Provisions

Students are subject to the discipline regulations of the institution that they are enrolled in.

Article 21: Visa Procedures

The program coordinators of both institutions, along with SHSU's Office of International Programs, will provide advice and support for students in visa applications.

The document showing proof of funding that the students need to present in order to get a visa are gathered by FU and submitted to SHSU. Regulations for SHSU student admission are determined by Sam Houston State University.

Article 22: Renewal, Amendments and Termination of the Protocol

After this protocol is approved by the authorized institutions, it will be valid for a period of five years as of the final date of signing. The protocol may be renewed if necessary. This partnership may be terminated provided that it is declared one year before the termination and that after all the students enrolled in the program complete their course requirements and get their dual diploma.

Notwithstanding any provision of this contract, nothing herein constitutes a waiver of the constitutional, statutory or common law rights, privileges, immunities or defenses of the parties.

**On behalf of
SAM HOUSTON STATE UNIVERSITY**

Signature

Name : Dr. Michael T. Stephenson

**Title : Provost and Senior Vice President
of Academic Affairs**

Date : October 4, 2022

**On behalf of
FIRAT UNIVERSITY**

Signature

Name : Dr. Fahrettin Göktaş

Title : Rector

Date : October 4, 2022

APPENDICES:

Appendix 1	The curriculum for Bachelor of Science Degree in Software Engineering
Appendix 2	Course Contents
Appendix 3	FU Diploma Sample
Appendix 4	SHSU Diploma Sample

SOFTWARE ENGINEERING**COURSE SCHEDULE**

FIRST YEAR (FU)										
First Semester						Second Semester				
Code	Course Name	T	P	C	ECTS	Code	Course Name	T	P	ECTS
TRD109	Turkish Language I	2	0	2	2	TRD110	Turkish Language II	2	0	2
YDI107	English I	2	0	2	2	YDI108	English II	2	0	2
FIZ111	Physics I	3	2	4	6	FIZ112	Physics II	3	2	6
MAT161	Mathematics I	4	0	4	6	MAT162	Mathematics II	4	0	6
YMT111	Algorithm and Programming I	3	2	4	7	YMT112	Algorithm and Programming II	3	2	7
YMT113	Introduction to Computer Science	3	2	4	7	YMT114	Principles of Software Engineering	3	2	7
Total CREDIT		17	6	20	30	Total CREDIT		17	6	30

SECOND YEAR (FU)										
Third Semester						Fourth Semester				
Code	Course Name	T	P	C	ECTS	Code	Course Name	T	P	ECTS
AIT209	Ataturk's Principles and the Historical Revolution I	2	0	2	2	AIT210	Ataturk's Principles and the Historical Revolution II	2	0	2
YMT211	Discrete Structure	2	2	3	5	MAT214	Linear Algebra	2	0	4
YMT213	Vocational English I	2	0	2	3	YMT212	Numerical Analysis	2	2	5
YMT215	Logic Circuits	3	2	4	6	YMT214	Vocational English II	2	0	3
YMT217	Programming Languages	3	2	4	6	YMT216	Microprocessors and Programming	3	2	6
YMT219	Data Structure	3	0	3	4	YMT218	Object Oriented Program.	3	2	6
YMT221	Engineering Mathematics	3	0	3	4	YMT220	Economy	2	0	4
Total CREDIT		18	6	21	30	Total CREDIT		16	6	30

THIRD YEAR (SHSU)										
Fifth Semester						Sixth Semester				
Code	Course Name	T	P	C	ECTS	Code	Course Name	T	P	ECTS
COSC 3318	Database Management Systems	3	0	3	4	COSC 4340	Research Topics in Computer Science	3	0	4
COSC 3331	Human Computer Interaction	3	0	3	4	COSC 3327	Computer Architecture	3	0	4
COSC 2327	Networks I	3	0	3	4	HIST 1302	United States History Sn 1876	3	0	4
HIST 1301	United States History to 1876	3	0	3	4	POLS 2305	American Government	3	0	4
ENGL 1301	Composition I	3	0	3	4	ENGL 1302	Composition I	3	0	4
Total CREDIT		15	0	15	20	Total CREDIT		15	0	20

FOURTH YEAR (SHSU)										
Seventh Semester						Eighth semester				
Code	Course Name	T	P	C	ECTS	Code	Course Name	T	P	ECTS
COSC 4314	Data Mining	3	0	3	4	COSC 4320	System Modeling and Simulation	3	0	4
COSC 4349	Professionalism and Ethics	3	0	3	4	COSC 4332	Computer Graphics	3	0	4
POLS 2306	Texas Government	3	0	3	4	TBD	Component Area 9	3	0	4
STAT 3379	Statistical Methods in Practice	3	0	3	4	TBD	Component Area 4	3	0	4
TBD	Component Area 5	3	0	3	4					
Total CREDIT		15	0	15	20	Total CREDIT		12	0	16

ECTS: European CREDIT Transfer System

Course Contents

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
TRD109	Turkish Language I	2	0	2	2
Course Contents					
Definition of the language, The place and importance of language as a social institution in life, Place of Turkish language among world languages, The development of the Turkish language and the historical periods, current situation of Turkish language and spread areas, Vowels in Turkish and classification of Turkish audio features and sound knowledge about the rules, knowledge of syllables, spelling rules and practice, punctuation marks...					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YDI107	English I	2	0	2	2
Course Contents					
Simple Present Tense, Articles, Numbers, Present Progressive Tense, Possessive Adjectives, can, Singular and Plurals, How Many, How Much, Some, Any, A Little, A Few, Some Prepositions.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
FIZ111	Physics I	3	2	4	6
Course Contents					
Vectors, balance, moment of a force, linear motion, Newton's second law, plane motion, work and energy impulse and momentum, rotational motion, elasticity, harmonic motion.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
MAT161	Mathematics I	4	0	4	6
Course Contents					
Real and complex numbers, sentences, permutation, calculations of inversion and combination, probability, group, ring, vector spaces, length, angle and projection calculations, matrices and determinants, linear equation systems.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT111	Algorithm and Programming I	3	2	4	7
Course Contents					
Problem solving. Input-Output process. Algorithm design. Algorithms certainty, finitude, efficiency, input-output. Constants, variables and expressions. Arithmetic, relational and logical processors. Input-output statements. Condition and Repetition. Vector and matrix representations. Character information operations. Subroutine and function routines. Recursion. Structural applications of a programming language.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT113	Introduction to Computer Science	3	2	4	7
Course Contents					
Detailed examination of the coding phase of the software development life cycle. The design of program logic. Programming languages. Introduction to Object-oriented methods. Database management systems. Computer networks and communication. Internet and World Wide Web. Programming technologies for the Web. Computers and security. Computers and social issues.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
TRD110	Turkish Language II	2	0	2	2
Course Contents					
Turkish affixes and their applications, general information about the composition, essay writing and implementation of the plan, adjectives and verbs, composition, expression and its application, use of adverbs in Turkish.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YDI108	English II	2	0	2	2
Course Contents					
Simple Past Tense, Auxiliary Verbs (Be, Do), Must, Have to, Has to, Going to Form, Adverbs of Time, Regular and Irregular Verbs, Possessive Pronouns					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
FIZ112	Physics II	3	2	4	6
Course Contents					
Electricity, electrostatics, Coulomb's law, electric field, potential, capacitance, properties of dielectric, electrokinetic, current, and resistance to direct current circuits, alternating currents					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
MAT162	Mathematics II	4	0	4	6
Course Contents					
Definition and types of functions, the absolute value functions, the full value functions, trigonometric functions, signal functions and their graphs, exponential and logarithmic functions and applications, sequences, continuity and limit, derivative, differential, and about the account applications, integration.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT112	Algorithm and Programming II	3	2	4	7

Course Contents					
Introduction to Object Oriented Programming and proper presentation of a programming environment. The basic language concepts (expressions, data types, variables, control structures, arrays, ...). Divide and Resolve Method. Modular software development (methods and classes). Class Variables and Local Variables. Form Elements. Event Driven Programming. Dynamic Arrays. Linked Lists. Search and Ranking Algorithms. Files. Selecting the appropriate structures algorithms. Development of effective algorithms.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT114	Principles of Software Engineering	3	2	4	7
Course Contents					
The scope of software engineering. Software development life cycle models. Software process. Software teams. Software tools. Software testing. Modules and objects. Re-usability and portability. Planning, cost and time estimation. Requirements. Classical analysis. Object-oriented analysis and design. Design types and object-sided design. Implementation and Integration. Maintenance of software product after delivery.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
AIT209	Ataturk's Principles and the Historical Revolution I	2	0	2	2
Course Contents					
The course covers the collapse of the Ottoman Empire and the causes of Turkish revolution, the disintegration of the Ottoman Empire, Armistice cease-fire agreement and subsequent events, situation of the country in occupation and response of Mustafa Kemal, M. Kemal to Samsun, and the opening of the last Ottoman Deputies Assembly, the opening of Parliament and get into the hands of the management of the liberation war.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT211	Discrete Structures I	2	2	3	5
Course Contents					
Fundamentals of discrete mathematics. Functions. Relations. Sets and simple proof techniques. Boolean algebra. Propositional logic. Digital logic. Elementary number theory. Counting the foundations of the concept.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT213	Vocational English I	2	0	2	3
Course Contents					
English equivalents of the main parts of the computer, the computer equivalents of English abbreviations and definitions used in the field, operating systems' English descriptions, classifications and definitions of microprocessors, network structures, cause-effect structures, adjective and noun clauses, conjunctions, passive sentences, causative sentences when used in academic publications, sentence structures, academic terms. Articles translate translation of parts of professional books, translation of user manuals.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT215	Logic Circuits I	3	2	4	6
Course Contents					
Digital Systems, Combinational Logic, Sequential Logic, register, and counters					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT217	Programming Languages	3	2	4	6
Course Contents					
Fundamental concepts in programming languages and basic programming paradigms, Pascal, C, C++ and Java programming languages and its variety of structures.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT219	Data Structures	3	0	3	4
Course Contents					
Introduction to Data Structures. Introduction to the Java programming language. Recursion. Stacks, Queues and Lists. Trees. Binary Trees and Balanced Trees. Operations on Trees. Comparison of Algorithms. Time and Location complexity. Sorting and Searching. Graph.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT221	Engineering Mathematics	3	0	3	4
Course Contents					
Differential equations. First order ordinary differential equations. Linear differential equations, Separable Equations. Euler Homogeneous Equations, Exact differential equations, Bernoulli Differential equations, Riccati Differential Equations. Engineering applications of first order ordinary differential equations, Second Order Differential equations, Undetermined Coefficients method, Variable Coefficients method, Initial and Boundary Value Problems, Laplace transformation. Review of Improper Integrals. Solving Initial Value Problems by using Laplace Transform.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
AIT210	Ataturk's Principles and the Historical Revolution II	2	0	2	2
Course Contents					
Abolition of the Caliphate, Progressive Republican Party and Takrir-i-Sukun period, Education Revolution, the Cultural Revolution, the letter revolution, revolution of Turkish history, Turkish language revolution, economic congress in Izmir, pass a multi-party life, women's rights revolution, hat, costume and dress reform, foreign policy of the Republic of Turkey, Ataturk's principles, political events, government and parliament relations between the Istanbul government, military developments, the Treaty of Kars, Ankara Agreement, Offensive, Mudanya truce, the removal of the Ottoman reign, the Lausanne peace treaty.					

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
MAT214	Linear Algebra	2	0	2	4
Course Contents					
Proposition Logic and Set Theory. Functions of Mathematical Methods and Algorithms of proof. Number Theory and Sequences. Induction and Recursion. Counting. Discrete Probability. Relations. Boolean Algebra. Graph Theory. Trees.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT214	Vocational English II	2	0	2	3
Course Contents					
Vector Spaces. Null space, colon, space, linearly dependent and linearly independent vectors, linear transformations, eigenvalues and eigenvectors, diagonalization, inner product spaces, orthogonal projection, Gram-Schmidt method, inner product space applications, Matrix algebra, Systems of linear equations, a set of solutions to systems of linear equations, Size and Rank Determinants.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT216	Microprocessors and Programming	3	2	4	6
Course Contents					
Microcomputers, microcomputer processors, memory and input / output units, microprocessor programming. Topics will include microprocessor architecture and structure, with an overview of 8- 16- and 32-bit systems, assembly language programming and the use of high-level languages.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT218	Object Oriented Progr.	3	2	4	6
Course Contents					
Efficient and flexible object-oriented software development, object-oriented programming concepts, the fundamentals of the C# or Java programming language, inheritance, polymorphism and dynamic binding, the concept of design patterns, implementation of some design patterns.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT220	Economy	2	0	2	4
Course Contents					
What is science? Economy and its problems, purpose of the production unit, production factors 'period' concept, the production function and the co-product curves, returns to scale, the law of diminishing productivity, decision-making related to long-term, short term and long-term costs, production unit, revenue, profit maximization and production unit, the principle of balance, presentation, production unit, the curve shift, presentation flexibility, and purpose of the consumer unit, consumer unit balance, the concept of money, the co-benefit curves, budget line, the consumer behavior explained with the help of co-benefit curves and budget line, the consumer unit, the request function of the curve of the total request, the request elasticity, price formation and markets, perfect competitive markets, monopoly markets, imperfectly competitive markets, markets of production factors.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
YMT212	Numerical Analysis	2	2	3	5
Course Contents					
Mathematical modelling and solution of engineering problems. Programming and software, error analysis. Approximation and interpolation, Solutions of linear equations, solutions of nonlinear equations. Optimization, curve fitting. Numerical differentiation, numerical integration. Solution of ordinary differential equations, solutions of partial differential equation. Fourier series and numerical simulation.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 3327	Computer Architecture	3	0	3	4
Course Contents					
This course is a continuation of COSC 2329, exploring computer organization and architectures in more depth and breadth. Specific topics may include milestones in the philosophy of computer design, Karnaugh maps for circuit minimization, memory types and organization, caching, pipelining, micro-architectures, parallel architectures, I/O devices, buses and bus protocols. Throughout the course, physical and performance considerations are stressed along with the hardware's interaction with operating systems.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 3318	Database Management Systems	3	0	3	4
Course Contents					
Students explore the design of information systems using database software and query language/programming interfaces. Data warehouse concepts are introduced. Legacy systems, LAN and distributed systems based systems are used to give the student hands-on experience in systems development.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 3331	Human Computer Interaction	3	0	3	4
Course Contents					
Students are provided a comprehensive introduction to the principles and techniques of human-computer interaction. Students examine the event-driven model through the development of applications utilizing graphical design environments and the use of rapid application prototyping to explore a variety of techniques for HCI, particularly in relation to mobile and other non-traditional devices.					
Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 2327	Networks I	3	0	3	4
Course Contents					

Students are introduced to installation, usage, and management of computer hardware and operating systems for business. Topics may include scripting, macros, intelligent agents. Installation and management of networks, the Internet, and communications software is covered.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 4340	Research Topic in Computer Science	3	0	3	4

Course Contents

Topics of general interest are offered on a timely basis. Previous topics include Cognitive Computing, Embedded Linux Systems, Visual Graphics/Component Systems. Variable Credit (1-3). advanced COSC and senior standing.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 4320	System Modeling and Simulation	3	0	3	4

Course Contents

This course is an introduction to modeling and simulation for analysis of computer software and hardware. Application of simulation analysis to design and development of computer software and systems, including modeling of computer and software components are discussed. Design, coding and use of discrete event simulation software will be covered.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 4332	Computer Graphics	3	0	3	4

Course Contents

Students are introduced to graphical APIs used in developing graphical user interfaces and multimedia applications. Topics covered are selected from the PHIGS, Windows, Presentation Manager, X-Windows, digital video and other appropriate technologies.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 4314	Data Mining	3	0	3	4

Course Contents

Students are provided an introduction to the newly-emerging field of data mining. Data mining is concerned with the automatic extraction of novel information and knowledge from large amounts of data in practical real world problems. Topics may will include fundamental concepts, data preparation and feature selection, standard data mining algorithms (including but not limited to association, classification, clustering, and prediction), and applications and evaluation of data mining techniques.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
COSC 4349	Professionalism and Ethics	3	0	3	3

Course Contents

Students examine the nature, need and value of well-formed ethical constructs within the digital forensics profession. Included in this course is a discussion, through case studies, of the nature of professionalism, personal and professional codes of ethics and conduct, and the professional handling of ethical and moral conflict. Students also explore the role of the professional in public policy and the awareness of consequences of ethical dissent and whistle blowing.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
ENGL 1301	Composition I	3	0	3	4

Course Contents

Students study English diction, sentence structure, and rhetoric while also focusing on developing college level writing. Students scoring 363 or higher on the Texas Success Initiative Assessment may enroll in this course without the companion course ENGL 0111.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
ENGL 1302	Composition II	3	0	3	4

Course Contents

Students continue to build upon the topics learned in ENGL 1301 by incorporating more complex methods into their writing processes. Students prepare to write academic essays and research papers, as well as orally present material.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
HIST 1301	United States History to 1876	3	0	3	4

Course Contents

Students examine the colonial origins of the United States and growth of the republic to 1876.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
HIST 1302	United States History Sn 1876	3	0	3	4

Course Contents

Students examine the history of the United States from 1876 to the present.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
POLS 2305	American Government	3	0	3	4

Course Contents

Students examine American government at the national level and develop the knowledge to engage in political and civic life. Topics may include the origin and evolution of the U.S. Constitution, political behavior and attitudes, political parties, interest groups, the media, and the three branches of government - Congress, the Executive Branch, and the Judiciary.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
POLS 2306	Texas Government	3	0	3	4

Course Contents

Students examine Texas government and politics. Topics may include the Texas Constitution; Texas' role in the federal system; political culture; individuals' political values and participation; interest groups; parties; elections and campaigns; the legislative, executive, and judicial branches; and fiscal, social, and economic policies.

Code	NAME	THEORETICAL	PRACTICE	CREDIT	ECTS
STAT 3379	Statistical Methods in Practice	3	0	3	4

Course Contents

Students study organization and presentation of data; measures of central tendency, dispersion, and position; probability distributions for discrete and continuous random variables, sampling techniques, parameter estimation, and hypothesis testing. Emphasis is given to the use of statistical packages. Also offered as MATH 3379.

FIRAT UNIVERSITY

Elazığ, TURKEY

Be it known that

Name of Person

having successfully completed the Course of Study as prescribed by the Faculty and Board of Regents and having complied with all other requirements of the University, has been declared a

Bachelor of Science in Engineering

and is entitled to all rights and privileges appertaining to that degree. In testimony whereof, the Board of Regents, upon recommendation of the Faculty, has granted this Diploma, bearing the seal of the Firat University with the cooperation with Sam Houston State University.

Dated this ____ day of ____, Two Thousand Twenty

Dean

Rector

SAM HOUSTON STATE UNIVERSITY

Huntsville, TEXAS, USA

Be it know that

Name of Person

having successfully completed the Course of Study as prescribed by the Faculty and Board of Regents
and having complied with all other requirements of the University, has been declared a

Bachelor of Science

in Engineering

and is entitled to all rights and privileges appertaining to that degree. In testimony whereof, the
Board of Regents, upon recommendation of the Faculty, has granted this Diploma, bearing
the seal of the Sam Houston State University with the cooperation with Firat University.

Dated this ____ day of ____, Two Thousand Twenty

Chairman of Board of Regents

President of the University