

First-Semester Curriculum Plan						
Course Code	Course Name	Theoretical	Practical	ECTS	Compulsory/Elective	Instructor
ESE820	PHD DISSERTATION	0	0	30	Compulsory	-
ESE509	SOLAR ENERGY BASICS	3	0	8	Elective	Prof. Dr. Abdullah YILDIZ
ESE511	NEW TECHNOLOGIES AND APPLICATION OF HYDROGEN	3	0	8	Elective	-
ESE513	RENEWABLE ENERGY SYSTEMS	3	0	8	Elective	Prof. Dr. Abdullah YILDIZ
ESE515	SPECIAL ELECTRIC MACHINES	3	0	8	Elective	Asst. Prof. Dr. Mehmet Zahid EREL
ESE517	HYDROGEN ENERGY TECHNOLOGIES	3	0	8	Elective	Assoc. Prof. Dr. Meryem Sena AKKUŞ
ESE519	POWER ELECTRONICS	3	0	8	Elective	Asst. Prof. Dr. Mehmet Zahid EREL
ESE521	PROJECT MANAGEMENT	3	0	8	Elective	-
ESE523	PRINCIPLES AND APPLICATIONS OF SOLAR ENERGY PHYSICS	3	0	8	Elective	Prof. Dr. Metin AKTAŞ
ESE525	ADVANCED BORON TECHNOLOGIES	3	0	8	Elective	Assoc. Prof. Dr. Meryem Sena AKKUŞ
ESE529	SUSTAINABLE ENERGY PRODUCTION AND USAGE	3	0	8	Elective	-
ESE555	THERMODYNAMIC ANALYSIS OF ENERGY RELATED SYSTEMS AND TECHNOLOGIES	3	0	8	*Compulsory/Elective	Prof. Dr. Bülent YAŞILATA
ESE557	HEAT TRANSFER ANALYSIS OF ENERGY RELATED SYSTEMS AND TECHNOLOGIES	3	0	8	Elective	Prof. Dr. Bülent YAŞILATA
ESE559	PROBABILITY AND STOCHASTIC PROCESS	3	0	8	Elective	Asst. Prof. Dr. Musaria Karim Mahmood
ESE561	ELECTROCHEMICAL ENERGY SYSTEMS	3	0	8	Elective	Prof. Dr. Nuray CELEBİ
ESE563	THERMAL ENVIRONMENTAL ENGINEERING	3	0	8	Elective	Prof. Dr. Bülent YAŞILATA
ESE565	FUEL CELL TECHNOLOGIES	3	0	8	Elective	Assoc. Prof. Dr. Meryem Sena AKKUŞ
TOTAL ECTS				158		

Second-Semester Curriculum Plan						
Course Code	Course Name	Theoretical	Practical	ECTS	Compulsory/Elective	Instructor
ESE800	SPECIAL STUDIES	8	0	8	Compulsory	-
ESE810	SEMINAR	0	2	10	Compulsory	-
FBE4000	STUDY FOR Ph.D QUALIFYING EXAM	0	0	30	Compulsory	-
FBE5000	THESIS PROPOSAL STUDY	0	0	30	Compulsory	-
FBE900	RESEARCH METHODS AND ETHICS	3	0	8	Compulsory	-
ESE504	RADIATION DETECTION AND MEASUREMENT	3	0	8	Elective	Prof. Dr. Fahrettin GÖKTAŞ
ESE512	ELECTRICAL POWER QUALITY	3	0	8	Elective	-
ESE524	ENERGY ECONOMICS AND POLITICS	3	0	8	Elective	-
ESE528	COMBUSTION	3	0	8	Elective	-
ESE536	NANOGENERATORS AND SELF-POWERED NANOSYSTEMS	3	0	8	Elective	Prof. Dr. Abdullah YILDIZ
ESE538	FOUNDATIONS OF PHOTOVOLTAIC ENERGY SYSTEMS	3	0	8	Elective	Prof. Dr. Metin AKTAŞ
ESE542	HISTORY OF SCIENCE AND TECHNOLOGY	3	0	8	Elective	-
ESE544	NUCLEAR ENERGY	3	0	8	Elective	Prof. Dr. Fahrettin GÖKTAŞ
ESE550	ADVANCED POWER ELECTRONICS	3	0	8	Elective	-
ESE552	ELECTRICAL, OPTICAL AND MAGNETIC PROPERTIES OF MATERIALS	3	0	8	Elective	Prof. Dr. Abdullah YILDIZ
ESE558	TECHNOLOGY AND INNOVATION MANAGEMENT	3	0	8	Elective	Prof. Dr. Bülent YAŞILATA
ESE566	HYDROGEN ENERGY	3	0	8	Elective	Assoc. Prof. Dr. Meryem Sena Akkuş
ESE568	STEAM BOILERS	3	0	8	Elective	-
ESE570	ADVANCED CIRCUIT ANALYSIS	3	0	8	Elective	Asst. Prof. Dr. SITKI KOCAOĞLU
ESE572	ROBOTICS AND ITS APPLICATIONS TO ENERGY SYSTEMS	3	0	8	Elective	Asst. Prof. Dr. SITKI KOCAOĞLU
ESE574	BIOFUELS, BIOMASS AND BIOTECHNOLOGY	3	0	8	Elective	Assoc. Prof. Dr. Ekin DEMİRAY
MATH511	ADVANCED ENGINEERING MATHEMATICS	3	0	8	*Compulsory/Elective	-
TOTAL ECTS				222		

* If the compulsory courses MATH511 (Advanced Engineering Mathematics I) and ESE555 (Thermodynamic Analysis of Energy Related Systems and Technologies) have been taken and successfully completed in the M.Sc. program in Energy Systems Engineering, they may be transferred/credited toward the Ph.D. program. Transferred courses are not counted within the seven courses required to be taken in the Ph.D. program.