AGU Graduate School of Engineering & Science
Electrical and Computer Engineering PhD Program

Program Records

About the Program	The Electrical and Computer Engineering Department's PhD Program at AGU emphasizes advanced graduate education for cutting-edge research aligned with AGU's aims which focus on multi-disciplinary research and education. The program's research focuses on current high-growth fields like optics, photonics, nanotechnology, biomedical and bioinformatics, information and communications technology, power systems engineering, energy, control, and automation. All graduate students are encouraged to participate in research projects which are funded by TUBITAK, BAP, EU Framework Programs, and industry. Applicants are strongly encouraged to apply for TUBITAK 2211 and TUBITAK 2215 scholarships. Internally funded scholarships will also be available for highly qualified candidates. The PhD program in Electrical and Computer Engineering at AGU fosters an interdisciplinary approach, encouraging collaboration across various domains. Doctoral candidates are mentored by leading experts in the field, which provides them with an ideal platform to contribute to the advancement of Electrical and Computer Engineering. By pursuing a graduate study in ECE program, students attain an expertise in solving real-world problems in an advanced research environment and a strong mathematics and physics background related to the advanced research topics.
Program Goals	Conduct independent research and education activities at national and/or international industrial companies, R&D institutions and/or universities, Interpret scientific, technical, and technological concepts in relation with the field of expertise, Contribute to the literature of Electrical and Computer Engineering.
Qualification Awarded	Doctorate (PhD Degree) / PhD in Electrical and Computer Engineering
Length of Program & Credits	4 years, 240 ECTS (Integrated PhD Program 5 years, 300 ECTS)
Level of Qualification	Third Cycle (PHD) Degree; EQF-LLL: Level 8, QF-EHEA: Level 3
Mode of Study	Full Time
Field of Study	Engineering
Admission Requirements	A Master's diploma; an acceptable score from YDS (Foreign Language Exam), YÖKDİL (Foreign Language Exam for Higher Education Institutions), or TOEFL; an acceptable score from the Academic Personnel and Postgraduate Education Entrance Exam (ALES - Mathematical Score Type); a passing score at the oral interview for the concerned doctoral program. International students are admitted based on the criteria posted by the university. Required minimum scores are as follows: 3.00 undergraduate GPA for applicants with an undergraduate diploma; 80 mathematical score from ALES; an acceptable score from YDS, YÖKDİL or TOEFL. Passing the oral interview for the concerned doctoral program.
Recognition of Credit Mobility	Course Substitution: For course substitutions, medium of instruction of a previous course must be English, its final grade must be at least 3.00 out of 4.00 and approval of a relevant University Board is required. Lateral Transfer: Spending at least one semester at the master's program currently enrolled in, taking at least 2 credit courses and passing them with at least 3.00 out of 4.00 and approval of a relevant University Board is required.

Graduation Requirements & Regulations

PhD Program:

Successful completion of 1 Compulsory Course, 6 Elective Courses (at least 4 of these electives must be taken from the ECE department, with 3 of these being ECE6XX coded; refer to the Curriculum section below for research track specifications), Seminar course, and Ethics course; a minimum grade point average (GPA) of 3.00; earning 240 ECTS credits; passing the PhD qualifying exam and successful submission of a thesis proposal and thesis.

Integrated PhD Program:

Successful completion of 2 Compulsory Courses, 13 Elective Courses (at least 8 of these electives must be taken from the ECE department, with 3 of these being ECE6XX coded; refer to the Curriculum section below for research track specifications), Seminar course, and Ethics course; a minimum grade point average (GPA) of 3.00; earning 300 ECTS credits; passing the PhD qualifying exam and successful submission of a thesis proposal and thesis.

Publication and activity requirements for taking the thesis defense exam in PhD program or Integrated PhD program:

1. 1 (one) paper accepted for publication in an SCI (Science Citation Index) or SCIE (Science Citation Index Expanded) journal.
2. 1 (one) paper accepted for publication in an SCI/SCIE/ESCI (Emerging Sources Citation Index)/TrDizin journal or 1 (one) paper presented in an international conference. The conference proceedings should be indexed by WoS/Scopus, or the conference selection should be approved by the program executive board. The content of the paper should be sufficiently different from the paper listed in item (1).
3. 1 (one) paper submitted for publication to an SCI/SCIE journal.

In all publications, student must be the first author or the corresponding author.

Occupational Profiles of Graduates

The main mission of the Graduate School of the Engineering & Science of AGU is to develop highly qualified entrepreneurs, researchers, high-level managers, and academicians. In parallel with this mission, graduates of ECE program can be employed as researchers or managers in the companies working in the fields like optics, photonics, nanotechnology, biomedical and bioinformatics, information and communications technology, power systems engineering, energy, control, and automation; or they can be employed as researchers or academicians in universities.

Access to Further Studies

Graduates may apply to post-doctorate studies

Assessment & Grading Policy

Based on Abdullah Gul University Graduate Education and Examination Regulation rules.

Letter Grade	Coefficient	Score	Status
A	4,00	90-100	Pass
A-	3,67	87-89	Pass
B+	3,33	83-86	Pass
B	3,00	80-82	Pass
B-	2,67	77-79	Pass
C+	2,33	73-76	Failed
C	2,00	70-72	Failed
C-	1,67	64-69	Failed
D+	1,33	56-63	Failed
D	1,00	50-55	Failed

Information letters	Explanation
NA	Not Attended
W	Withdrawn
I	Incomplete
T	Transferred
S	Satisfactory
U	Unsatisfactory
P	In Progress
EX	Exempt
Q	PhD Qualified
T	Thesis Level

	F	0,00	0-49	Failed

Program Outcomes

PO1. Interpret information by conducting scientific research in the field of electrical and computer engineering.

PO2. Apply comprehensive knowledge about current techniques and methods applied in electrical and computer engineering, including their limitations.

PO3. Produce knowledge using scientific methods with uncertain, limited, or missing data from different disciplines.

PO4. Find out more information about emerging applications in electrical and computer engineering.

PO5. Identify scientific problems related to the field to develop innovative methods and approaches.

PO6. Recommend innovative and original ideas and methods for designing complex systems or processes related to electrical and computer engineering.

PO7. Solve complex problems encountered in research by designing theoretical, experimental, and modeling-based approaches.

PO8. Communicate verbally and in writing using English language at professional level.

PO9. Clearly and systematically discuss the processes and results of their work in national and international contexts within or outside their field, in written or oral form.

PO10. Understand the social, environmental, health, safety, legal, and sustainability dimensions of engineering applications, as well as project management and professional practices by acknowledging the limitations they impose on engineering applications.

PO11. Prioritize societal, scientific, and ethical values in all stages of data collection, interpretation, disclosure, and in all professional activities.

TQF-HE & Program Outcomes Coverage

	Knowledge	**Skills**	**Competences**			
	Theoretical Conceptual	Cognitive Practical	Work Independently and Take Responsibility	Learning	Communication and Social	Field Specific
PO1	X			X		
PO2	X			X		
PO3	X			X		
PO4	X			X		
PO5	X	X	X			X
PO6	X	X		X		X
PO7		X	X			X
PO8				X	X	
PO9		X			X	
PO10		X	X		X	X
PO11				X	X	X

Institutional & Program Outcomes (IOs) * Coverage

	IO1	IO2	IO3	IO4	IO5	IO6	IO7
PO1	X						
PO2	X						
PO3	X						
PO4	X				X		
PO5	X	X	X				
PO6	X	X	X		X		
PO7	X	X					
PO8			X	X	X	X	
PO9				X	X	X	
PO10			X			X	X

PO11	X	X

* Link for the AGU Institutional Student Learning Outcomes (IOs)
https://cat.agu.edu.tr/Pages/KurumsalOgrencmeCiktilari.aspx?lang=en-US

Curriculum (Power Track / Computers Track / Electronics and Communication Track)

PhD Program

Semester	Code	Course		T	P	C	ECTS
1st	GCC 1001	Introduction to Scientific Research Methods and Scientific Publication Ethics*		3	0	3	7,5
	ECE 602	Mathematical Optimization: Theory and Methods		3	0	3	7,5
	ECE 6XX	Elective*		3	0	3	7,5
	ECE 6XX	Elective*		3	0	3	7,5
		semester credits	**12**	12	0	**12**	**30**
2nd	ECE 6XX	Elective*		3	0	3	7,5
	ECE XXX	Elective*		3	0	3	7,5
	X-1	Elective*		3	0	3	7,5
	X-2	Elective*		3	0	3	7,5
		semester credits	**12**	12	**0**	**12**	**30**
3rd – 8th	ECE 600	Seminar		0	2	0	5
	ECE 697	PhD Special Topics		4	0	0	30
	ECE 699	PhD Thesis		0	1	0	145
		semester credits		4	3	**0**	**180**
		TOTAL	**24**	**28**	**3**	**24**	**240**

Curriculum Summary (Power Track / Computers Track / Electronics and Communication Track)

%		Courses	Credit	ECTS
3.125	**YÖK/HEC Courses** GCC 1001	1	3	7.5
3.125	**Compulsory** ECE 602	1	3	7.5
18.75	**Technical Electives*** ECE 6XX, ECE XXX, X-1, X-2	6	18	45
2.08	**Seminar** ECE 600	1	0	5
12.5	**PhD Special Topics** ECE 697	1	0	30
60.42	**PhD Thesis** ECE 699	1	0	145
100,0	**TOTAL**	**11**	**24**	**240**

* If a student took the GCC 1001 course during MSc. studies, the student must take another graduate course with the same ECTS in the PhD.
* If a student took ECE 565 course during MSc. studies, the student must take another ECE5XX or ECE6XX coded elective course as a substitute of ECE 565.
* ECEXXX coded courses can be completed by taking ECE5XX or ECE6XX coded courses.
* X-1 and X-2 coded courses can be completed by taking ECE5XX or ECE6XX coded courses or courses with the same ECTS from other graduate programs.
* For Power Track students, three of the Elective courses should be in Power Track.
* For Electronics and Communication Track students, two of the Elective courses should be in Electronics and Communication Track.
* For Computers Track students, two of the Elective courses should be in Computers Track.

The semester in which the courses will be offered is under the authority of the Program Executive Board.

Track Name	Course Code
Power Track	ECE 506, ECE 507, ECE 519, ECE 553, ECE 555, ECE 557, ECE 558, ECE 576, ECE 577, ECE 578, ECE 588, ECE 607, ECE 651, ECE 652, ECE 653, ECE 654, ECE 655

Electronics and Communication Track	ECE 501, ECE 504, ECE 505, ECE 508, ECE 513, ECE 515, ECE 520, ECE 521, ECE 522, ECE 523, ECE 525, ECE 527, ECE 535, ECE 541, ECE 543, ECE 585, ECE 588, ECE 589, ECE 590, ECE 640, ECE 641, ECE 642, ECE 643, ECE 645, ECE 686
Computers Track	ECE 503, ECE 511, ECE 512, ECE 514, ECE 518, ECE 528, ECE 529, ECE 530, ECE 531, ECE 532, ECE 533, ECE 544, ECE 547, ECE 560, ECE 561, ECE 562, ECE 563, ECE 564, ECE 565, ECE 566, ECE 581, ECE 582, ECE 646, ECE 661, ECE 663

Integrated PhD Program in Electrical and Computer Engineering Curriculum (Power Track / Computers Track / Electronics and Communication Track)

Sem.	Code	Course			T	P	C	ECTS
1st	GCC 1001	Introduction to Scientific Research Methods and Scientific Publication Ethics			3	0	3	7.5
	ECE 551	Scientific Computing with MATLAB			3	0	3	7.5
	ECE 602	Mathematical Optimization: Theory and Methods			3	0	3	7.5
	ECE XXX	Elective*			3	0	3	7.5
			semester credits	**12**	**12**	**0**	**12**	**30**
2nd	ECE XXX	Elective*			3	0	3	7.5
	ECE XXX	Elective*			3	0	3	7.5
	ECE XXX	Elective*			3	0	3	7.5
	ECE XXX	Elective*			3	0	3	7.5
	ECE 600	Seminar			0	2	0	5
			semester credits	**12**	**12**	**2**	**12**	**35**
3rd	ECE 6XX	Elective*			3	0	3	7.5
	ECE 6XX	Elective*			3	0	3	7.5
	ECE 6XX	Elective*			3	0	3	7.5
	X-1	Elective*			3	0	3	7.5
			semester credits	**12**	**12**	**0**	**12**	**30**
4th	X-2	Elective*			3	0	3	7.5
	X-3	Elective*			3	0	3	7.5
	X-4	Elective*			3	0	3	7.5
	X-5	Elective*			3	0	3	7.5
			semester credits	**12**	**12**	**0**	**12**	**30**
5th-10th	ECE 697	PhD. Special Topics			4	0	0	30
	ECE 699	PhD. Thesis			0	1	0	145
			semester credits		**4**	**1**	**0**	**175**
			TOTAL	**48**	**48**	**3**	**48**	**300**

Curriculum Summary

%		Courses	Credit	ECTS
2.5	**YÖK/HEC Courses** GCC 1001	1	3	7.5
5	**Compulsory** ECE 551, ECE 602	2	6	15
32.5	**Technical Electives*** ECE XXX, X-1, X-2, X-3, X-4, X-5	13	39	97.5
1.67	**Seminar** ECE 600	1	0	5
10	**PhD Special Topics** ECE 697	1	0	30
48.33	**PhD Thesis** ECE 699	1	0	145
100,0	**TOTAL**	**19**	**48**	**300**

* ECEXXX coded courses can be completed by taking ECE5XX and ECE6XX coded courses.
* For Power Track students, six of the Elective courses should be in Power Track.
* For Electronics and Communication Track students, four of the Elective courses should be in Electronics and Communication Track.
* For Computers Track students, four of the Elective courses should be in Computers Track.
* X-1, X-2, X-3, X-4, and X-5 coded courses can be completed by taking ECE5XX or ECE6XX coded courses or courses with the same ECTS from other graduate programs.

The semester in which the courses will be offered is under the authority of the Program Executive Board.

Track Name	Course Code
Power Track	ECE 506, ECE 507, ECE 519, ECE 553, ECE 555, ECE 557, ECE 558, ECE 576, ECE 577, ECE 578, ECE 588, ECE 607, ECE 651, ECE 652, ECE 653, ECE 654, ECE 655
Electronics and Communication Track	ECE 501, ECE 504, ECE 505, ECE 508, ECE 513, ECE 515, ECE 520, ECE 521, ECE 522, ECE 523, ECE 525, ECE 527, ECE 535, ECE 541, ECE 543, ECE 585, ECE 588, ECE 589, ECE 590, ECE 640, ECE 641, ECE 642, ECE 643, ECE 645, ECE 686
Computers Track	ECE 503, ECE 511, ECE 512, ECE 514, ECE 518, ECE 528, ECE 529, ECE 530, ECE 531, ECE 532, ECE 533, ECE 544, ECE 547, ECE 560, ECE 561, ECE 562, ECE 563, ECE 564, ECE 565, ECE 566, ECE 581, ECE 582, ECE 646, ECE 661, ECE 663