Course Title-Course Code: ILT519 Semiconductor Materials Technology And Applications II					**Name of the Programme:** Advanced Technology				
Semester	**Teaching Methods**							**Credits**	
	Lecture	**Recite**	**Lab.**	**Term Project**	**Homework**	**Other**	**Total**	**Credit**	**ECTS Credit**
	42				70	76	188	3	7.5
Language	Turkish								
Compulsory / Elective	Elective								
Prerequisites	None								
Course Contents	Semiconductor devices, Light emitting diodes (LED), Lasers, Working principles of lasers, Laser sources (solid,liquid, gas), Semiconductor injection lasers, Types of injection lasers, Edge-Emitting lasers, Vertical Cavity Surface Emitting Lasers (VCSEL), Growth methods of Quantum Well laser diodes, Quantum Wire Lasers, Growth methods of Quantum Dot Laser diodes, Stranski-Krastanov methods. Degradation of laser parameters, Laser applications								
Course Objectives	To be informed about growth methods and working principles of nanodimensional heterostructure devices, mostly lasers.								
Learning Outcomes and Competences	To gather information about the nanodimesional semiconductor device technology.								
Textbook and /or References	"Semiconductor Devices", S.M. Sze, John Wiley&Sons, INC. "Semiconductors- Basic Data", Otfried Madelung , Springer. "Molecular Beam Epitaxy", M.A. Herman, H. Sitter, Springer " The Growth of Single Crystals", R.A. Laudıse, Prentıce- Hall, Inc, "Crystal Growth Mechanisms: Energetıcs, Kinetics and Transport", R.L. Parker, National Bureau of Standards, Washington D.C. "The Technology and Physics of Molecular Beam Epitaxy", A.Y. Cho "Molecular Beam Epitaxy and Heterostructures", Leroy L. Chang, Klaus Ploog.								

Assessment Criteria		***If any,mark as (X)***	**Percent (%)**
	Midterm Exams	X	20
	Quizzes		
	Homeworks	X	20
	Projects		
	Term Paper		
	Laboratory Work		
	Other	X	10
	Final Exam	X	50

Instructors	Prof. Dr. Tofig Mammadov
Week	**Subject**

1	Semiconductor devices,
2	Light emitting diodes (LED),
3	Lasers, Working principles of lasers,
4	Laser sources (solid,liquid, gas),
5	Semiconductor injection lasers,
6	Types of injection lasers,
7	Edge-Emitting lasers,
8	Vertical Cavity Surface Emitting Lasers (VCSEL),
9	Growth methods of Quantum Well laser diodes,
10	Quantum Wire Lasers,
11	Growth methods of Quantum Dot Laser diodes, Stranski-Krastanov methods.
12	Degradation of laser parameters,
13	Laser applications
14	