

Name of the course	Solar-Hydrogen Energy Systems
Number of instruction hours	45
Outline of course/module content	Advantages of green hydrogen as a carrier of energy and raw material in the chemical industry. Hydrogen production by water electrolysis. Electrochemical mechanisms of hydrogen and oxygen evolution reactions. Catalysts composition, design and mechanism for hydrogen evolution reaction. Types and basic characteristics of electrolyzers for hydrogen production. Research methodology for electrolyzer development. Renewable energy sources. Photovoltaic cells and solar power plants. Coupling of solar power plants and electrolytic hydrogen plants, design basics and calculations. Economic viability of solar-hydrogen systems.
Description of instruction methods	Lectures, consulting, seminars, student research projects
Description of course/module requirements	Oral exam, seminar paper