

# ENERGY TRANSITION: PERSPECTIVES & OPPORTUNITIES SUMMER SEMINAR

**Certificate awarded by:** ECE Paris: Graduate School of Engineering

**Welcome event:** July 2<sup>nd</sup>, 2018 (morning) **Start date of courses:** July 2<sup>nd</sup>, 2018 (afternoon)

**End date:** July 26<sup>th</sup>, 2018 **Certificate Ceremony:** July 26<sup>th</sup>, 2018

**Total ECTS:** 9 **Total contact hours:** 72

**Program requirement:** a minimum 18 years of age

**Program location:** ECE Paris – 37 quai de Grenelle, 75015 Paris, France

**Language of instruction:** English

## PROGRAM FEE: 1,850€

### FEE INCLUDES:

- Orientation/Welcome Event
- Weekly cultural visits/activities
- Computer accounts at the school (WIFI access)
- Access to the school's MediaCenter
- Official transcript of grades
- Program Certificate
- Certificate Ceremony

### PROGRAM OVERVIEW/OBJECTIVE:

The seminar is composed of a set of 3 courses (3 x 24h, 3 x 3 ECTS). Its main objective is to provide students with engineering and socio-economic knowledge and techniques for understanding, assessing the energy transition system moving to clean energy in order to mitigate environmental and climate issues associated with energy production, transmission, distribution and consumption in existing portfolio.

Students will learn:

- Basic knowledge needed in order to understand today's energy and climate challenges;
- Basic knowledge on energy supply, transmission, distribution, storage and use;
- Basic knowledge needed in order to understand political economy of energy transitions;
- Basic knowledge needed to quantify and evaluate any economic and environmental benefits of energy transition policies and programs;
- Basic knowledge needed to benchmark different energy transitions policies.

Successful student will be granted with a certificate

## CONTACT [summer@pariseiffel.fr](mailto:summer@pariseiffel.fr)

### PROGRAM COURSE LIST

Course Title	ECTS (credits)	Contact hours	Level (undergraduate or graduate)
Understanding “Energy & Environment” Issues	3	24	undergraduate
Energy Transition: Perspectives & Opportunities	3	24	undergraduate
Fostering Effective Energy Transition	3	24	undergraduate

### COURSE 1

Course Title	Understanding “Energy & Environment” Issues
Learning outcomes	<p>Students will learn basic knowledge needed in order to understand today’s energy and climates challenges.</p> <p>This course provides students with the basic knowledge needed for understanding, assessing, and mitigating environmental issues associated with energy production, transmission, distribution and consumption in existing portfolio.</p>
Pre-requisites	Fundamentals of Economics and basic knowledge in Socio-Geopolitics
Recommended readings	<p>“The Politics and Institutions of Global Energy Governance” by Thijs Van de Graaf.</p> <p>“The Political Economy of Sustainable Energy” by Catherine Mitchell.</p> <p>“Energy and the Environment” by Robert A. Ristinen &amp; Jack P. Kraushaar.</p>

### COURSE CONTENT:

The course will be composed of 24h of face-to-face (lectures, tutorials or labs).

- Introduction: Getting Power to People
- Global Energy Supply and Use
- The Global Context

### COURSE 2

Course Title	Energy Transition: Perspectives & Opportunities
Learning outcomes	<p>Students will learn about strategies, technologies, transition pathways to improve energy access and security in all sectors of activity, while ensuring environmental and socio-economic benefits in a sustainable way.</p> <p>This course provides students with a comprehensive vision of the energy transition system moving to clean energy, considering the challenge it represents in terms of integration of great share of renewable, R&amp;D and innovation, financing schemes, costs and opportunities.</p>
Pre-requisites	Fundamentals of Economics and basic knowledge in Socio-Geopolitics
Recommended readings	“Global Energy: Issues, Potentials, and Policy Implications” by Paul Ekins, et al, “Renewables: The Politics of a Global Energy Transition” by M. Aklin and J. Urpelainen.

### COURSE CONTENT:

The course will be composed of 24h of face-to-face (lectures, tutorials or labs).

- Introduction to political economy of energy transitions
- Varieties of clean energy
- Innovative technologies to mitigate climate change
- IEA global low-carbon energy technology roadmaps
- Financing low-carbon energy strategies
- Energy transition benefits

### COURSE 3

Course Title	Fostering Effective Energy Transition
Learning outcomes	<p>Students will learn about global benchmarking of energy systems highlighting topical energy issues and providing guidance on making energy transitions more effective.</p> <p>This course provides students with a clear comprehension of how countries can achieve balancing the trade-offs between energy access and security, energy equity, environmental sustainability with respect to socio-economic development.</p>
Pre-requisites	Fundamentals of Economics and basic knowledge in Socio-Geopolitics
Recommended readings	<p>“Benchmarking Sustainability of National Energy System” by World Energy Council,</p> <p>“Global Energy Shifts: Fostering Sustainability in a Turbulent Age” by Bruce Podobnik.</p>

### COURSE CONTENT:

The course will be composed of 24h of face-to-face (lectures, tutorials or labs).

- Introduction to assessment of energy transition efficiency
- Energy architecture performance index (World Economic Forum)
- World Energy Trilemma Index (World Energy Council)
- Energy efficiency and decarbonization strategies: intercomparison analysis between USA, China and Denmark