

Wind Science and Engineering

Origins, Developments, Fundamentals and Advancements

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Content

Wind involves a unique property of dualism. The wind is evil when it destroys buildings and territories, producing more fatalities and damage than any other natural event; when it whips men, houses and settlements with cold or hot air; when it makes urban areas uncomfortable; when it destroys crops and exposes transport to risks; when it erodes the soil up to make lands deserts; when it drifts snow, burying roads and buildings; when it is a tool for air pollution and the aggression of monumental heritage. On the other hand, the wind is good because, as the engine of atmospheric circulation, life on the Earth would not exist without the wind; when it powers windmills and wind turbines, producing clean energy; when it favours the circulation of fresh air inside buildings or along the arteries of the urban fabric; when it offers breath to the populations that live in deserts or in lands dried up by the sun; when it disperses pollutants and smog clouds away from populated areas and urban islands.

The course illustrates the evolution of the wind knowledge and mankind's ability to exploit the beneficial aspects of the wind and to protect itself from the harmful ones throughout four periods: origins, from the dawn of history to the Renaissance; developments, from the Renaissance to the end of the nineteenth century; fundamentals, from the late nineteenth century to the mid-twentieth century; and advancements, from the mid-twentieth century to the third millennium.

The course will be developed in 10-hours lectures plus a short written test.

References

Solari, G. (2019). *Wind Science and Engineering*. Springer, Switzerland, in press.