

## Module description

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<b>Name of module:</b>	Advanced Fluid Dynamic
<b>Keywords:</b>	Aerodynamic, laminar, turbulent, Navier-Stokes, liquid
<b>Module number:</b>	Not compulsory
<b>Target groups:</b>	6 - 7 Semester, exchange students
<b>ECTS - Credits:</b>	4
<b>Language of instruction:</b>	English
<b>Module owner:</b>	Prof. Dr.-Ing. Ulrich Gärtner
<b>Date of last change:</b>	20.09.2015

### Extent of work (hours)

Workload	Contact hours	Self study	Exam preparation
120	60	40	20

<b>Prerequisites:</b>	Basic knowledge about fluid mechanics
<b>Total target:</b>	
<b>Module number:</b>	Not compulsory
<b>Module content:</b>	<ul style="list-style-type: none"><li>• Conservation of Mass and Momentum</li><li>• Navier-Stokes equations</li><li>• Similarity laws</li><li>• Potential flow</li><li>• Boundary layers, laminar and turbulent</li><li>• Aerodynamic coefficients and forces</li><li>• Compressible isentropic flow</li><li>• Disintegration of liquid flow</li></ul>
<b>Reference material:</b>	Script, calculation examples
<b>Offered:</b>	Every semester
<b>Relevance for other study programs:</b>	Automotive Engineering

### Submodules and assessments

<b>Title of submodule:</b>	See above
<b>Type of instruction / form of learning:</b>	Lecture with exercises
<b>Hours per week:</b>	4
<b>Target groups:</b>	See above
<b>Aims, learning outcomes:</b>	See above
<b>Estimated student workload:</b>	120 h
<b>Type of assessment:</b>	Written exam