

# “Atelier Fil Rouge”: Small Satellite Mission Workshop

<b>Host Institutes</b>	ESTACA, ISAE-ENSMA, ISAE-SUPAERO, ECOLE DE l’AIR
<b>Objectives</b>	Preliminary design of a microsatellite application mission as a common thread spanning over the summer programme
<b>Prerequisites</b>	Basic background on mechanical and electric engineering
<b>Contents</b>	<p>Launch vehicle (ESTACA)</p> <ul style="list-style-type: none"><li>- Performance requirements</li><li>- Launch vehicle definition</li><li>- Launch vehical interfaces</li></ul> <p>Mechanical architecture (ENSMA)</p> <ul style="list-style-type: none"><li>- Mechanical architecture</li><li>- Thermal analysis</li></ul> <p>Spacecraft subsystems (ISAE-SUPAERO)</p> <ul style="list-style-type: none"><li>- Orbit characteristics and constraints</li><li>- Attitude control system</li><li>- Power system: solar array, batteries</li></ul> <p>Communication architecture (ECOLE de l’AIR)</p> <ul style="list-style-type: none"><li>- Payload constraints and requirements</li><li>- Link budgets</li><li>- Ground segment definition</li></ul>
<b>Duration</b>	Four 4-hour sessions (one at each host site) plus final presentation (3h)
<b>Bibliography</b>	Space Mission Analysis and Design, Ed W. Larson, 2013 Space Mission Engineering, The New SMAD, Ed J. Werstz 2011 Satellite Communications Systems, G. Maral & M. Bousquet, Wiley 2010
<b>Assesment:</b>	Team presentation