

Links with project MESA are the most contained in the subject **RENEWABLE ENERGY SOURCES**. This subject is an elective subject and is learning in the 4th grade of program Mechatronics Technician.

## Subject **Renewable energy sources**

4th grade

Through this subject, student will achieve this learning outcomes:

1. Select the appropriate source of renewable energy
2. Select the components of the energy system
3. Properly dimensioned system component
4. Make a cost estimate for the development of energy systems and make cost-benefit analysis
5. Connect the energy system
6. Commissioning of the system
7. Develop technical and technological documentation using standards

### Elaboration

EDUCATIONAL TOPICS	TEACHING CONTENTS
<ul style="list-style-type: none"> <li>impact of energy sources on the environment</li> </ul>	<ul style="list-style-type: none"> <li>energy sources</li> <li>impact of the energy sources on the development of greenhouse gas emissions</li> </ul>
<ul style="list-style-type: none"> <li>renewable energy sources</li> </ul>	<ul style="list-style-type: none"> <li>sun as an energy source</li> <li>geothermal energy</li> <li>tidal energy</li> </ul>
<ul style="list-style-type: none"> <li>solar thermal systems</li> </ul>	<ul style="list-style-type: none"> <li>system components</li> <li>design and dimensioning</li> <li>cost estimations and cost-effectiveness analysis</li> <li>system connection</li> <li>commissioning of the system</li> </ul>
<ul style="list-style-type: none"> <li>heat pumps</li> </ul>	<ul style="list-style-type: none"> <li>system components</li> <li>design and dimensioning</li> <li>cost estimations and cost-effectiveness analysis</li> <li>system connection</li> <li>commissioning of the system</li> </ul>



Leonardo da Vinci

TSC Nova Gorica  
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<ul style="list-style-type: none"> <li>photovoltaic systems</li> </ul>	<ul style="list-style-type: none"> <li>system components</li> <li>design and dimensioning</li> <li>cost estimations and cost-effectiveness analysis</li> <li>system connection</li> <li>commissioning of the system</li> </ul>
<ul style="list-style-type: none"> <li>wind turbines</li> </ul>	<ul style="list-style-type: none"> <li>system components</li> <li>design and dimensioning</li> <li>cost estimations and cost-effectiveness analysis</li> <li>system connection</li> <li>commissioning of the system</li> </ul>
<ul style="list-style-type: none"> <li>small hydropowers</li> </ul>	<ul style="list-style-type: none"> <li>system components</li> <li>design and dimensioning</li> <li>cost estimations and cost-effectiveness analysis</li> </ul>
<ul style="list-style-type: none"> <li>biomass</li> </ul>	<ul style="list-style-type: none"> <li>biomass as a source of thermal energy</li> <li>biomass as a source of fuel</li> <li>biogas</li> </ul>
<ul style="list-style-type: none"> <li>energy containers</li> </ul>	<ul style="list-style-type: none"> <li>accumulators of electric energy               <ul style="list-style-type: none"> <li>measurement of battery characteristics</li> </ul> </li> <li>fuel cells               <ul style="list-style-type: none"> <li>electrolysis</li> </ul> </li> <li>other containers of energy</li> </ul>

Remark: teaching process, 50% of the time, is running practically and 50 % serves to connect the acquired content with theoretical knowledge and practical application.



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