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## **Innovative Student Developments in the Framework of the Project "Ecological Vehicles"**

Automobile transport has a great importance in people's lives. Passenger and freight transportation, diagnostics, technical service and car repairs are connected with automobile transport. In the first place advanced materials and high technology are applied in automobile transport. This leads to a change in specifications and design of cars.

The important issue for motorists is the search for engines running on alternative energy sources. The importance and urgency of the problem are determined, on the one hand, by the limited supply of oil, and the pollution caused by modern vehicles, on the other hand. From the point of view of leading experts the perspective tendency is the development of hybrid engines and engines running on alternative sources of energy (electric, solar, etc.).

Considering the perspective areas of road transport development and modern innovative approaches in pedagogy of higher school, students' design bureau has been created at the department of automobiles and automotive economy. The fourth- and fifth-year students majoring in automobile transport, under the supervision of the department teachers undergo a full production cycle of a finished product. Students' responsibilities in the design bureau include: the development of requirements specification, and the analysis of technical, technological, design, engineering, organizational, economic and environmental aspects of the developed model. This approach allows students to extend their theoretical knowledge, connect theory with practice and feel the joy of joint creative labor.

Over the past five years students-automobilists have designed five models of environmentally friendly transport, which can be divided into three groups. The first group consists of electric vehicles "KANGU-111" and "Phoenix", based on a motor-wheel used in its design. The second group consists of "KANGU-112" and "NMS" hybrids models based on a hybrid combination of electric motor and internal combustion engine. The third group is represented by eco-mobil, which runs by 150 solar cells reaching a speed of 20 km/h and traveling without recharging during 3 ... 3.5 hours.

The work carried out by the students' design bureau, laid a foundation for the development and production of an experimental model of hybrid car Daewoo Sens in order to launch it into mass production.