Topics for independent student work (ISW) in the form of projects in the field of green technologies:

1. **Development of a plan for energy-efficient modernization of a medical facility**

Objective: To analyze the current energy consumption of a healthcare facility and develop an action plan to reduce energy consumption and implement energy-efficient technologies, such as improved insulation, LED lighting, energy management systems, and others.

2. **Using renewable energy sources to meet the energy needs of a medical facility**

Objective: To explore the potential of using solar panels, wind turbines, geothermal systems and other renewable energy sources to provide electricity and heat to a medical facility.

3. **Development of a project to create a "green" garden or patio on the territory of a medical facility**

Objective: To propose ideas and develop a design for a site within a healthcare facility that will improve the environment, reduce stress, and enhance the well-being of patients and staff.

4. **Design of a green wing or facility within a medical facility**

Objective: To develop a design for the construction of a new building or wing using advanced green technologies and sustainable design principles to minimize negative environmental impact and create a comfortable environment for patients and staff.

5. **Development of a program for the implementation of a waste management system in a medical institution**

Objective: To develop a program for the collection, processing, and disposal of waste in a healthcare facility, including biomedical waste, hazardous chemicals, and other types of waste, to minimize environmental impacts and ensure the safety of staff and patients.

Project implementation plan for topic 1. "Development of a plan for energy-efficient modernization of a medical facility":

1. Defining the goals and objectives of the project:

- Identify the key project goals, such as reducing energy consumption, improving energy efficiency, and saving costs.
- Formulate specific tasks necessary to achieve the project objectives, such as analyzing current energy consumption, assessing the effectiveness of proposed measures, and developing an action plan.

2. Preparation of initial data:

- Collect information on the current energy consumption of a medical facility over a certain period of time (electricity, heat, water).
- Conduct an analysis of the energy consumption structure and identify the main sources of energy consumption.

3. Identification of potential activities:

- Explore possible measures to reduce energy consumption and improve energy efficiency, such as installing energy-efficient lighting, insulating the building, installing an energy management system, and others.

4. Evaluation of the effectiveness of activities:

- Calculate the economic and environmental efficiency of the proposed measures.
- Compare the costs of implementing measures with the expected economic benefits and reduction of negative impact on the environment.

5. Develop an action plan:

- Based on the results of the analysis and evaluation, develop a specific action plan for the implementation of the selected activities.
- Determine the stages of implementation, responsible performers and deadlines for each activity.

6. Report preparation:

- Prepare a report on the analysis conducted, the proposed measures and the developed action plan.
- Present the project results to the administration of the medical institution for discussion and decision-making on the implementation of the proposed measures.

7. Evaluation of results:

- To evaluate the effectiveness of the implementation of measures to reduce energy consumption and improve energy efficiency over a certain period of time after their implementation.
- To analyze the achieved results and formulate recommendations for further improvement of the energy efficiency of the medical institution.

Project implementation plan for topic 2. "Use of renewable energy sources to meet the energy needs of a medical institution":

1. Defining the goals and objectives of the project:

- Formulate project objectives, such as reducing dependence on traditional energy sources, increasing the sustainability of energy supply and reducing negative impacts on the environment.
- To outline the main objectives of the project, including the analysis of the possibility of using various types of renewable energy sources, an assessment of their effectiveness and the development of a plan for their implementation.

2. Research of possible energy sources:

- Provide an overview of various renewable energy sources such as solar energy, wind energy, geothermal energy and biomass.
- To assess the potential for using each type of energy to meet the energy needs of a medical facility in accordance with its geographic location and infrastructure.

3. Development of technical design:

- Select the optimal type of renewable energy source or combination of them for implementation in a medical facility.
- Develop a technical project that includes equipment selection, energy performance calculations, infrastructure design, and equipment location determination.

4. Assessment of economic efficiency:

- Calculate the costs of implementing the selected energy source, including the cost of equipment, installation and operation.
- Assess the economic benefits of using a renewable energy source, including reduced energy costs and possible financial incentives or rebates.

5. Preparation of design documentation:

- Develop a complete set of design documentation, including technical drawings, equipment specifications, energy parameter calculations and economic justifications.
- Prepare an action plan for project implementation, including the stages of work, required resources, and a completion schedule.

6. Presentation of the project and decision making:

- Present the developed project to the administration of the medical institution, highlighting the main points and advantages of using renewable energy sources.
- Discuss the proposed solutions, consider possible alternatives and decide on further steps to implement the project.

7. Implementation and control:

- Once the decision to implement the project has been made, begin implementing its stages, monitor the progress of the work, and ensure compliance with deadlines and quality.
- Monitor the efficiency of renewable energy sources after their implementation and adjust the project if necessary.

Project Implementation Plan for Topic 3. "Development of a Project to Create a 'Green' Garden or Patio on the Grounds of a Medical Institution":

1. Defining the goals and objectives of the project:

- Formulate the main goals of the project, such as creating a comfortable and healthy space for patients and staff, improving the environment, and enhancing the aesthetic perception of the medical facility.
- Identify project objectives, including user needs analysis, selection of the optimal location for a garden or patio, design development, and planting selection.

2. Analysis of user needs and preferences:

- Conduct a survey among employees and patients of a medical institution to identify their preferences and needs regarding the creation of green space.
- Analyze the data obtained and identify the main requirements for the future garden or patio.

3. Selecting a location and developing a design:

- Conduct an analysis of the medical facility's site and select the optimal location for a green garden or patio, taking into account accessibility, lighting, visibility, and other factors.
- Design a garden or patio, including choosing plants, furniture, landscaping elements, and other details.

4. Preparation of technical design:

- Prepare technical documentation, including a site plan, plant and material specifications, utility drawings, and other necessary data.
- Develop a project budget, including costs for purchasing materials, renting equipment, and paying for labor.

5. Site preparation and project implementation:

- Conduct preparatory work at the selected site, including clearing debris, preparing the soil, and installing the necessary infrastructure.
- Plant plants and install other design elements in accordance with the developed project.

6. Evaluation of results and adjustments:

- Assess the quality of the work performed and the compliance of the completed project with the specified goals and requirements.
- Conduct a survey of staff and patients of the healthcare facility to obtain feedback on the created green space.
- If you need to make design adjustments or improve the operating conditions of your garden or patio.

7. Documentation and conclusion of the project:

- Prepare a project completion report, including before and after photographs, a list of work completed, and expenses.
- Submit a report to the administration of the medical institution for approval and conclusion of the project.

Project implementation plan for topic 4. "Design of a green wing or facility on the premises of a medical facility":

1. Defining the goals and objectives of the project:

- Formulate project goals such as creating a sustainable and healthy space for patients and staff, integrating nature into the healthcare facility, and improving aesthetics and comfort.
- Identify project objectives, including user needs analysis, design concept development, and selection of sustainable materials and construction technologies.

2. Analysis of user needs and determination of the location for the facility:

- Conduct a survey of employees and patients of the medical institution to identify their preferences and needs for the new facility.
- Determine the optimal location for the creation of a green wing or facility, taking into account accessibility, visibility, lighting, and compatibility with existing infrastructure.

3. Concept and design development:

- Develop the concept and design of the property, including the choice of architectural style, room layout, window placement and open spaces.
- Explore the possibilities of using green technologies and sustainable materials in the construction of the facility.

4. Preparation of technical design:

- Develop technical documentation including a site plan, building drawings, material specifications and technical solutions.
- Prepare a project budget, including construction costs, material purchases, equipment rental, and labor costs.

5. Project implementation:

- Carry out construction work in accordance with the developed project, including the erection of buildings, installation of utilities, finishing and landscaping of the territory.
- Ensure quality control of completed work and compliance with technical requirements and standards.

6. Evaluation of results and adjustments:

- Assess the quality of the work performed and the compliance of the completed project with the specified goals and requirements.
- Conduct a survey of the healthcare facility's staff and patients to obtain feedback on the new facility.
- If necessary, make adjustments to the design or improve the operating conditions of the facility.

7. Documentation and conclusion of the project:

- Prepare a project completion report, including before and after photographs, a list of work completed, and expenses.
- Submit a report to the administration of the medical institution for approval and conclusion of the project.

Project implementation plan for topic 5. "Development of a program for the implementation of a waste management system in a medical institution":

1. Defining the goals and objectives of the project:

- Identify project objectives such as minimizing the environmental impact of healthcare waste, ensuring safe and efficient waste management, and complying with regulations and legislation.
- Formulate project objectives, including analysis of the current waste management system, development of a program for its improvement and implementation, staff training, and monitoring of results.

2. Analysis of the current waste management system:

- Conduct an analysis of the processes of collection, processing, storage and disposal of medical waste in a medical institution.
- Assess the effectiveness of current waste management methods and technologies, identify problem areas and bottlenecks.

3. Development of a program to improve the waste management system:

- Develop a program to improve the waste management system, including the development of procedures for the collection, sorting, labeling, storage and disposal of waste.
- Take into account the requirements of regulations and standards for handling medical waste.

4. Personnel training:

- Organize training for medical facility personnel on medical waste management rules and procedures.
- Conduct trainings and seminars for medical personnel on the proper collection, processing and disposal of waste.

5. Implementation of the program and monitoring of results:

- Implement the developed medical waste management program into the work of the medical institution.
- Organize monitoring of the program’s implementation and evaluate its effectiveness by collecting data on the quantity and types of waste, the degree of its processing and disposal.

6. Evaluation of results and adjustment of the program:

- To evaluate the results of the implementation of the medical waste management program and compare them with the initial indicators.
- If necessary, make adjustments to the program, taking into account feedback from staff and monitoring results.

7. Documentation and conclusion of the project:

- Prepare a project implementation report, including a description of the program, its implementation, monitoring results, and suggestions for improvement.
- Submit a report to the administration of the medical institution for approval and conclusion of the project.