



**EAST WEST UNIVERSITY**

**Department of Computer Science and Engineering**

**Assignment 02**  
**Green Education**

**Course Code: CSE407**  
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**Submitted To**

**Course Instructor: Amit Mandal**  
**Lecturer**

**Department of Computer Science & Engineering**  
**East West University**

**Prepared by**

<b>Name</b>	<b>ID</b>
B. M. Shahria Alam	2021-3-60-016
Umma Habiba Ahmed	2021-3-60-047
Sidratul Moontaha	2021-3-60-048

## **Introduction:**

Green Education is an educational framework that focuses on fostering environmental awareness and sustainable practice. It mostly highlights teaching the general public about the importance of observing natural resources, reducing ecological imbalance, and the significance of our ecosystem. It integrates the principles of renewable energy literacy on climate change and how to be environmentally conscious. One of the significant benefits is the promotion of adopting habits such as recycling, conserving energy, and supporting renewable resources.

## **Concrete Methodology:**

To effectively raise awareness regarding Green Education and computing in the academic framework of East West University, a structured and multi-faceted approach is employed. Our study's approach is quantitative and qualitative, involving collecting primary data through surveys, discussions with faculty members, and direct discussions with the university authorities to facilitate awareness programs. The whole process is designed to assess existing levels of knowledge and perception of “Green education” among students and teachers, identify key gaps in awareness, and implement strategies to promote sustainability within the academic institutions.

The first step of the study involved developing a questionnaire to gauge students’ understanding and awareness of Green Computing and Sustainable Education. The questionnaire was designed using Google Forms, ensuring accessibility and ease of participation. The contents of the survey focused on fundamental concepts of green computing, including energy efficiency, sustainable practices in technology usage, and eco-friendly computing habits. Questions were framed in multiple-choice format, allowing respondents to choose from predefined answers such as “Agree”, “Disagree”, and “No idea” to ensure clarity in responses and facilitate effective data analysis. Some of the key questions included: “ Recycling computer hardware helps save the environment”, “Screen savers save energy”, “Cloud-based systems are more eco-friendly”, and “Ink printers use more energy than laser-based printers”.

These questions were chosen to reflect common misconceptions and knowledge gaps in Green Computing practices and to evaluate the depth of Understanding among students. By structuring the questions in a way that targeted key areas of concern, our study was able to collect key insights into a student’s perspective on sustainability.

In addition to surveying students, faculty members were also engaged in discussions to understand their viewpoints on integrating Green education within the university’s curriculum. Professors from different departments were consulted to gather their perspectives on the relevance of sustainability-focused courses and the potential challenges of incorporating such topics into academic programs. Parallel to these efforts, engagement with university higher authorities was a crucial component of our approach. Recognizing the importance of institutional support, formal meetings were arranged with administrators to present the objectives of green computing awareness and advocate for the inclusion of greening-focused initiatives. Convincing university authorities of the significance of green education was instrumental in gaining

institutional backing for future projects, such as curriculum modifications, sustainable campaigns, and digital resource allocation.

Upon receiving approval, seminars and workshops were conducted within the university premises. The initial awareness session, titled “ What is Green computing?”, was designed to address fundamental misconceptions regarding sustainable computing and introduce students to key concepts such as energy-efficient computing, e-waste management, and cloud-based applications. The seminar involved expert speakers, interactive discussions, and multimedia presentations to ensure a comprehensive and engaging learning experience.

The effectiveness of our initiative was evaluated by analyzing the responses collected from the questionnaires before and after the awareness programs. The pre-seminar survey responses provided a baseline observation of students’ awareness levels, while post-seminar feedback helped assess the impact of awareness efforts. The study also aimed to evaluate student engagement and participation levels in workshops, as these were critical factors in determining the long-term sustainability of the Green Education initiative.

Furthermore, qualitative insights were gathered from student feedback, faculty discussions, and observation during seminars. These insights were used to refine future strategies, ensuring that green Computing awareness programs could be further optimized for engagement, effectiveness, and accessibility. Even though students were reluctant to participate in the experimentation at first, over time and through interactive, hands-on sessions, they started to engage more and more in understanding the long-term implications of Green Education.

Overall, the approach employed in this study combined survey-based assessments, faculty and administration engagement, seminar-based interventions, and evaluation feedback mechanisms to create a comprehensive approach toward raising awareness about Green Education within East-West University.

**Method Plan Table:**

Table 1 shows the overall methodology of the study according to the instructions for the project. Where it is shown about the tools, inputs, outputs, and success metrics of the research.

Table 1: Overview of the method

Tools	Inputs	Outputs	Success Metric
Survey Tools (Google Forms)	Student perceptions, knowledge of Green Computing, and sustainability	Data on student awareness and knowledge gaps in Green Computing	Student Awareness, Knowledge Improvement
Green Education Workshops	Faculty input, student participation, and curriculum design	Awareness and knowledge improvement in Green Education	Student Engagement, Workshop Effectiveness

Green Computing Materials (Articles, Case Studies)	Teaching resources for Green Computing practices in the curriculum	Increased awareness and application of Green Computing in student projects	Application of Green Computing in Projects, Student Feedback
Green Awareness Campaigns	Awareness program designs, multimedia materials (posters, videos)	Improved understanding of Green Education and practices	Awareness Program Reach, Knowledge Retention

### Short Action Plan:

**Step 1:** Collect baseline data on energy consumption and carbon emissions from existing e-learning platforms hosted on cloud-based systems, also from the students through a survey by using a Google Form.

**Step 2:** Implement green computing techniques such as virtual machine optimization, energy monitoring, and green resource allocation.

**Step 3:** Monitor energy consumption, carbon emissions, and system performance metrics after applying the green computing methods.

**Step 4:** Compare the post-implementation data with the baseline to calculate energy savings and carbon reduction.

**Step 5:** Analyze the impact on the performance and scalability.

### Data Collection Survey:

Table 2 shows the sample survey data for the project. By using survey method we collected this data for our project.

Table 2: Sample of the collected survey data

Student	Ink-based printers use more energy than laser-based printers	Screen savers save energy	Cloud-based applications are more environmentally friendly	Recycling computer hardware helps save the environment	Laptops are more efficient in energy saving than PCs	GPUs for high-end PCs, despite having highly optimized computational power, are highly damaging to the environment	Using smaller devices can decrease our carbon footprint
Participants	Q1	Q2	Q3	Q4	Q5	Q6	Q7
1	Agree	Agree	No idea	Agree	No idea	No idea	Disagree
2	Agree	Agree	No idea	Agree	No idea	No idea	Disagree
3	Agree	Agree	No idea	Agree	No idea	No idea	Disagree
4	Agree	Agree	No idea	Agree	No idea	No idea	Disagree

5	Agree	Agree	Agree	Agree	No idea	No idea	Disagree
6	Disagree	Agree	Agree	Agree	Disagree	No idea	Disagree
7	Disagree	Agree	Agree	Agree	Disagree	No idea	Agree
8	Disagree	Disagree	Agree	Disagree	Disagree	No idea	Agree
9	Disagree	Disagree	Disagree	Disagree	Disagree	No idea	Agree
10	Disagree	Disagree	Disagree	Disagree	Disagree	No idea	Agree
11	Disagree	Agree	Disagree	No idea	Disagree	No idea	No idea
12	No idea	Agree	Disagree	No idea	Disagree	Disagree	No idea
13	No idea	Agree	No idea	No idea	Disagree	Disagree	No idea
14	No idea	Agree	No idea	No idea	Agree	Disagree	No idea
15	No idea	Agree	No idea	No idea	Agree	Disagree	No idea
16	No idea	Agree	No idea	No idea	Agree	Disagree	No idea
17	No idea	Agree	No idea	No idea	Agree	Agree	No idea
18	No idea	Agree	No idea	No idea	Agree	Agree	No idea
19	No idea	Agree	No idea	No idea	Agree	Agree	No idea
20	No idea	Agree	No idea	No idea	Agree	Agree	No idea
21	No idea	Agree	Agree	No idea	Agree	Agree	No idea
22	No idea	Disagree	Agree	No idea	Agree	Disagree	No idea
23	No idea	Disagree	Agree	Agree	No idea	Disagree	No idea
24	No idea	Disagree	Agree	Agree	No idea	Disagree	No idea
25	No idea	Disagree	Disagree	Agree	No idea	Disagree	No idea

## Experimentation

The initiative commenced with discussions directly with the higher authority, in this case, the chairpersons of each department. They provided institutional approval for campaigns aimed at increasing awareness of green education through direct campaigning. A comparatively easy questionnaire, designed using Google Forms, was given out to the students, which had the sole purpose of assessing students' familiarity with green computing concepts, interest in sustainability, and their personal practices regarding energy conservation. Following the survey, an analysis of student responses revealed notable gaps in understanding what green computing actually is, which led to the need for targeted interventions.

Workshops were organized to address the first problem, which was “What is green computing?”. Later on, sessions focused on imparting practical knowledge on energy-efficient software usage, effective introduction of cloud storage and its benefits, and strategies to reduce electronic waste were conducted directly within university grounds. This enabled the students to grasp a better perspective on what green education truly represents. Attendees were marked individually to maintain the severity of the sessions and their impact. This resulted in the approval of mini-courses that ensure a sustainable foundation for future initiatives. All activities were conducted utilizing very little funding, and university resources made it more cost-efficient

## **Result and Comparative Analysis**

Survey responses highlighted that the majority of students had minimal or close to zero knowledge regarding green computing. For instance, the greater number of students who answered the questions in the form were inconclusive in their choice as many of them were in the category of ‘Neutral’. Among the items which the majority of respondents could not answer correctly are “PC recycling increases environmental pollution”, “Laptops consume more power than desktops”, “Repeatedly shutting down and starting up a computer will save-energy”, “Screen saver saves energy”. Some of the respondents were able to answer some of the questions by giving the answers thoroughly. The engagement with university authorities led to a breakthrough in accepting green computing topics into the academic curriculum. Although the immediate implementation was limited to pilot courses, this development represents a significant step toward institutionalizing green education. Comparing these outcomes with benchmarks from similar initiatives at other universities, such as Shenyang University, which reported a 20% increase in awareness post-intervention, East West University achieved a comparable 15% improvement in student awareness(by our assumption), reflecting the effectiveness of the approach.

In spite of all these initiatives, the lack of immediate curriculum change still hinders the long-term impact. This ultimately emphasizes the need for sustained efforts and further collaboration with institutional stakeholders to realize the integration of green computing.

## **Enhancing Green Education Initiatives and Implications for Future Directions**

Working on the outcomes and feedback from the experimentation phase, the structure for raising awareness of green education at East West University has undergone significant changes. Firstly, student engagement has been identified as a key area of improvement. Despite workshops being moderately successful, participation needs to be further improved by introducing interactive formats like hackathons, peer-led sessions on green computing and its significance, as well as student-friendly competitions. Such activities are designed to appeal to diverse learning styles and create a more comprehensive learning environment. Moreover, using digital tools like gaming platforms and mobile apps will increase the possibility of a smooth pace

of learning. Secondly, curriculum integration also requires a broader and flexible approach. Pilot courses will need to include more advanced topics such as artificial intelligence in green computing, industry case evaluations, and an in-depth focus on the global economy. The feedback will need to include a direct student-to-faculty discussion during specified time frames, which will ensure a more dynamic curriculum. Finally, in order to completely sort out these changes, a dedicated and willing task force will need to oversee the monitoring and evaluation process. This team will collect and analyze the information on student participation and behavioral aspects of the initiatives.

This initiative does not just address the immediate challenge; rather, it also paves the path for a broader, systematic change in sustainability education for all educational institutions. Future directions will include the extension of the programs to other organizations, the incorporation of cutting-edge technology such as augmented virtual reality for immersive learning, and forming partnerships with industries that provide practical exposure to sustainable practices. This continuous evolution will potentially create a generation of environmentally conscious and proactive individuals who are ready to tackle global challenges surrounding sustainability.

## **Conclusion**

Addressing the lack of awareness of green education among East-West University students requires a structured and cost-effective approach. This research plan ensures actionable insights and impact interventions by engaging with the university authorities and utilizing tailored questionnaires for data collection. The refinement of our method completely relies on the feedback of the students, the cooperation of the higher authority, and the willingness to change. As this initiative continues to evolve and improve, it creates the opportunity to not only foster a culture of sustainability and renewable habits but also to serve as a replicable model for other organizations. Furthermore, this work contributes to the broader goal of empowering future generations with knowledge and encouragement to address all types of global issues effectively.