17.4.4 AASTMT's Role in Promoting Sustainable Literacy

2023–2024

AASTMT continued strengthening sustainability literacy during the 2023–2024 academic cycle, expanding assessment practices across programs and embedding SDG-related evaluation into coursework and institutional initiatives. The evidence below demonstrates how student understanding of sustainability is measured in a structured and verifiable manner.

Sustainability Literacy and Knowledge Assessment Framework (SLAF)

Building on earlier initiatives, AASTMT strengthened its evaluation processes in 2023–2024 through the expanded implementation of the Sustainability Literacy and Knowledge Assessment Framework (SLAF). This framework applies rubric-based evaluations, SDG-linked project assessments, and outcome-driven criteria to measure how effectively students understand and retain sustainability concepts within their academic disciplines. Beginning in September 2023, SLAF was formally integrated across most academic programs, ensuring that all students complete at least one sustainability-focused assessment prior to graduation. Through these embedded evaluation tools, AASTMT has established a consistent, university-wide mechanism for assessing sustainability literacy and monitoring student learning outcomes.

- **Example: Sustainability Literacy Assessment Using an SDG-Linked Rubric (ELES214 – Logistics & Supply Chain Management)**

The application of SLAF can be seen clearly in the evaluation rubric used within the *Logistics and Supply Chain Management* program for Course Code ELES214. In this project, students were assessed on a set of learning outcomes directly linked to SDG 7 (Affordable and Clean Energy) and SDG 12 (Responsible Consumption and Production). The rubric evaluates competencies such as understanding energy-policy impacts, communicating the need for energy efficiency, applying renewable-energy strategies, recognizing global clean-energy challenges, and demonstrating knowledge of sustainable production and consumption practices.

Each criterion is scored on a scale from *1 (Insufficient)* to *5 (Excellent)*, providing a measurable indicator of the student's sustainability literacy. In the example shown, the student achieved high scores across most sustainability-related indicators—particularly in renewable-energy application and sustainable production strategies—resulting in an overall score of 4.5/5. This outcome illustrates the student's strong ability to analyze sustainability issues, communicate their importance, and apply SDG-related concepts within a discipline-specific context.

College of International Transport and Logistics
Evaluation Rubric

Semester: Fall 2022-2023 **Department:** Logistics and Supply Chain Management
Course Code: ELES214

Category	Insufficient (1)	Fair (2)	Good (3)	Very good (4)	Excellent (5)	Score	Total
SDG7 by the end of this project the student will be able to							
Understands how policies can influence the development of energy production, supply, demand and usage.			✓			3	
Able to communicate the need for energy efficiency and sufficiency.				✓		4	
Apply basic principles to determine the most appropriate renewable energy strategy in a given different sectors.					✓	5	**4.2**
Assess and understand the need for affordable, reliable, sustainable and clean energy of other people/other countries or regions.				✓		4	
Apply basic principles to determine the most appropriate renewable energy strategy in a given situation.					✓	5	

Category	Insufficient (1)	Fair (2)	Good (3)	Very good (4)	Excellent (5)	Score	Total
SDG 12 by the end of this project the student will be able to							
Know about strategies and practices of sustainable production and consumption.					✓	5	
Communicate the need for sustainable practices in the industrial sector.					✓	5	
Encourage others to engage in sustainable practices in industrial life.				✓		4	**4.8**
Plan, implement and evaluate consumption-related activities using existing sustainability criteria such as (Environmentally friendly material, E-vehicle,…….).					✓	5	
Challenge cultural and social orientations in consumption and production.					✓	5	

Total Score: 4.5/5

SLAF on AASTMT webpage
ESG - Environmental, Social and Governance on AASTMT webpage

SDG-Integrated Academic Assessment Rubrics

AASTMT evaluates sustainability literacy through structured SDG-based rubrics embedded within academic coursework. These rubrics measure student competencies related to SDG themes such as affordable clean energy, sustainable production, climate action, and responsible consumption. Assessment criteria include students' ability to apply sustainability strategies, analyze environmental impacts, and propose SDG-aligned solutions. By assigning

measurable scores across performance levels, these rubrics provide direct evidence of how students learn, understand, and retain sustainability concepts in their field of study.

#	Evaluation Criteria	Available Mark	Attained Mark
1	**Ethical and Social Responsibility: (Outcome 4)** 1. Student demonstrated an ability to recognize ethical and professional responsibilities associated with this engineering design experience. 2. Student demonstrated an ability to make informed judgements in the context of this senior design experience. 3. Careful consideration of the impact of the product of this senior design experience in global, economic, environmental, and societal contexts was evident.	10	10
2	**Design Procedure with Multiple Realistic Constraints and System Development Process: (Outcome 2)** 1. Student developed a design strategy including a plan of work. 2. Student studied several potential solutions and selects most appropriate 3. Student developed a solution with consideration of economical, safety, welfare, global, cultural, social, public health aspects, as well as environmental factors. 4. Student identified and exploited technical implementation of the project. 5. Student specified the constraints in his/her design. 6. Student aware of standards related to the solution or the design.	10	10
3	**New Knowledge: (Outcome 6, 7)** 1. Student correctly applied modern engineering/scientific principles to design a practical process/system. 2. Student used modern engineering tools (software, hardware tools). 3. Student analyzed and interpreted data and uses engineering judgment to draw conclusions.	10	10
4	**Communication Skills: (Outcome 3)** 1. Student demonstrated effective oral presentation skills. 2. The quality of the student's contributions to the written report. 3. Student answered questions with critical thinking and reasoning.	10	10
	Total	40	40

Comments on Individual Student Performance and any recommendations:

#	Evaluation Criteria	Score (1-5)	Available Mark	Attained Mark
1	**Motivation: (OUTCOME A.3,4,5,10)** 1. Impact of project to society is clear (such as cost, function, environmental impacts) 2. Research methodology is identified		15	15
2	**Professional and Ethical Responsibility: (OUTCOME A.2,3,C.3,9)** 1. Literature and resources are properly cited 2. Evaluates and judges situations in practice using facts 3. Understands the role of professional ethical standards for decisions and uses personal value system if needed		15	14
3	**Literature survey and research work: (OUTCOME A.1,C.1,3,4)** 1. Clear and complete background analysis of problem provided 2. Sufficient evidence to justify study from an organizational perspective 3. Is able to understand, interpret, and apply learned materials and concepts through course of study		15	15
4	**Team Work capabilities: (OUTCOME A.5,6,7,8)** 1. Cooperation and regular meetings with supervisor 2. Effective communications with the group students 3. Understanding of the fulfilled and future objectives 4. Successful progress according to proposed action plan		15	15
	Total		60	59

Scoring
5.0 rating – All criteria are outstandingly present
4.0 rating – All criteria sufficiently present
3.0 rating – Some deficiency in criteria present
2.0 rating – Moderate deficiencies in criteria present
1.0 rating – A number of deficiencies to the extent where the criteria is unacceptable

ABET–SDG Mapping of Learning Outcomes

AASTMT institutionalizes sustainability literacy by aligning ABET student learning outcomes with the UN Sustainable Development Goals. The ABET–SDG mapping table demonstrates how core competencies such as design, ethics, communication, teamwork, and lifelong learning are directly connected to SDGs including SDG 3, SDG 4, SDG 5, SDG 6, SDG 7, SDG 9, SDG 10, SDG 12, SDG 13, SDG 14, SDG 15, and SDG 17. This alignment ensures that sustainability is not only taught but formally assessed through program-level learning outcomes. As a result, all students enrolled in ABET-accredited programs receive sustainability-linked evaluation as part of their academic progression.

✨ ABET Outcomes vs SDGs Mapping Table

ABET Outcome	Mapped SDGs
Outcome 2 (Design)	SDG 3 – Good Health and Well-Being, SDG 6 – Clean Water and Sanitation, SDG 7 – Affordable and Clean Energy, SDG 9 – Industry, Innovation and Infrastructure, SDG 11 – Sustainable Cities and Communities, SDG 12 – Responsible Consumption and Production, SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land
Outcome 4 (Ethics)	SDG 4 – Quality Education, SDG 5 – Gender Equality, SDG 8 – Decent Work and Economic Growth, SDG 10 – Reduced Inequalities, SDG 16 – Peace, Justice and Strong Institutions, SDG 17 – Partnerships for the Goals
Outcome 3 (Communication)	SDG 1 – No Poverty, SDG 2 – Zero Hunger, SDG 4 – Quality Education, SDG 5 – Gender Equality, SDG 6 – Clean Water and Sanitation, SDG 10 – Reduced Inequalities, SDG 14 – Life Below Water, SDG 16 – Peace, Justice and Strong Institutions, SDG 17 – Partnerships for the Goals
Outcome 5 (Teamwork)	SDG 5 – Gender Equality, SDG 6 – Clean Water and Sanitation, SDG 8 – Decent Work and Economic Growth, SDG 9 – Industry, Innovation and Infrastructure, SDG 10 – Reduced Inequalities, SDG 15 – Life on Land, SDG 16 – Peace, Justice and Strong Institutions, SDG 17 – Partnerships for the Goals
Outcome 7 (Lifelong Learning)	SDG 4 – Quality Education, SDG 6 – Clean Water and Sanitation, SDG 8 – Decent Work and Economic Growth, SDG 9 – Industry, Innovation and Infrastructure, SDG 12 – Responsible Consumption and Production, SDG 13 – Climate Action, SDG 14 – Life Below Water, SDG 15 – Life on Land, SDG 17 – Partnerships for the Goals