



### TEAM MEMBERS

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### DURATION

2026-2030

## A Prototype of a Cross Flow Induced Draft Cooling Tower with Waste Plastic Fill Material

Bangladesh University of Engineering and Technology, Dhaka, Bangladesh

### OUR STORY

This project helped the team learn about cooling tower design, heat and mass transfer, prototype fabrication, and experimental testing. It also provided practical experience in evaluating cooling tower performance and showed how recycled PET plastic waste can be used in an engineering application.

### OUR PROJECT

This project involves the design and fabrication of a lab-scale induced-draft cross-flow cooling tower using PET plastic bottles as fill material. The fill is designed with concentric PET bottle cylinders of different diameters with plastic straw reinforcement to maximize the air–water contact surface area and enhance heat transfer. The project also promotes the sustainable reuse of plastic waste. Experimental evaluation was conducted to determine key cooling tower performance parameters, including range, approach, effectiveness, L/G ratio, NTU, and the volumetric mass transfer coefficient.

