By David W. Bower

The MIT Space Systems Laboratory is preparing an experiment on human productivity in space for the National Aeronautics and Space Administration (NASA), according to Assistant Professor David L. Akin '74.

The MIT project, dubbed EASE — experimental assembly of structures in EVA (extravehicular activity) — is scheduled for the 14th shuttle flight in June 1984.

Two shuttle crewmen, while in orbit around the earth, will construct a simple triangular pyramid using underwater simulation. The experiment is designed to test the Shuttle's capability to perform an assembly task in space.

The experiment is being conducted in MIT's Neutral Buoyancy Tank, which provides an environment similar to that of space. The crewmen will repeat the process as many times as possible during EVA, and will be videotaped at each step.

All previous tests of how humans can work while weightless have been conducted in underwater simulation, known as neutral buoyancy. Akin said. EASE is identical to an experiment previously run in a neutral buoyancy tank at NASA's Marshall Space Flight Center in Huntsville, Alabama.

NASA will assess the usefulness of underwater simulation by comparing results of the two tests. If the new experiment succeeds, "researchers will have direct data on human productivity in space," Akin noted.

Akin was one of three students in the Space Systems Laboratory when it was founded in 1975. The students studied feasibility of industrialization in space, leading them to consider how well humans could work in space by using underwater simulation.

Akin and his team first used subca gear in MIT's Alumni Pool, and eventually used Skylab pressure suits in the Marshall neutral buoyancy tank. They assembled structures underwater, he said, to test their efficiency while weightless.

Underwater assembly is faster than land assembly, Akin continued, but the bulky pressure suits at Marshall slightly increased assembly times.

MIT is participating in NASA's structural assembly demonstration experiment (SADE), scheduled for the shuttle in June 1985. NASA plans to have shuttle crewmen build a 120-foot-by-five-foot-square structure outside the shuttle's payload doors. The experiment is designed to test several assembly techniques and the effect of structural dynamics on the orbiter's flight control system. NASA and the Space Systems Laboratory plan to use information gathered by EASE to improve the later SADE project.

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