Taking a practical approach to very ancient weaponry

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AS IDEAS go, asking a bunch of first year engineering students to design and build their own medieval weapon is either inspired or crazy. That's exactly what students in Trinity College Dublin have been doing as part of a year-long project aimed at bringing a more practical side to engineering right from the very beginning of the degree course.

From the start of this year, the 180 students in first year engineering in TCD were broken into groups of five or six, in which they designed, tested and built a medieval catapult called a mangonel. Each week, the students have had a three-hour module made up of lectures from senior academics from the school of engineering to help them along the way as they built their own catapults.

"The emphasis was on active learning," explains Dr Gareth Bennett, a lecturer in the school of engineering who co-ordinated the course. "So there was project work to be done, but there was also a focus on leaving as much as possible to the students to discover and be innovative on their own. We knew it would be a success if it was received well by students, and it really was. It was fun for them, but there was also a competitive edge. Students really got into it; lots of them were out practising and improving their catapults in the weeks running up to the day of the competition."

The mangonels were tested on the TCD Rugby Pitch on May 9th. The winning team managed to catapult a squash ball 47 metres on the day, and received a cash prize from Honeycomb Solutions, which sponsored the event.

"At the start of the year I'm not sure we knew what we were getting into – it was only when we started actually working on the design and testing it that we realised what it would be like," says 20-year-old Deaglan Gibbons who was part of the winning team.

"It's been the most enjoyable part of first year," says 19-year-old Robert Murphy from Kilkenny who was also on the winning team. "There was a great group effort involved; we'd practised a lot in the month before, but on the day we did the best we'd ever done. Were we confident we would win on the day? Yes, definitely. Doing the project has made me lean strongly towards studying mechanical engineering when we get the chance to specialise in third year."

The project was part of a new approach towards learning called Conceive-Design-Implement-Operate (CDIO) which aims to give more of a practical element to engineering. The approach came out of research done in MIT which found that employers in the industry were not completely happy with the engineering graduates that were coming out of college, and found them to be capable, but not fully versed in the more practical side of engineering.

"Companies don't want engineers just to sit in a chair all day, they want them to have skills that they can apply to lots of different projects," explains Dr Bennett. "Courses like this are about giving the students experience, as well as actually teaching them engineering.

"It's crucial that we provide actual engineering projects to students that have chosen engineering on their CAO forms so that they receive as much exposure as possible to their chosen careers. The students were clearly excited to have an opportunity to try out their theories on something tangible, and that could be seen in their enthusiasm throughout the year."

Students take part in mangonel trials in Trinity College Dublin