

Engineering Department Rationale

“As engineers, we were going to be in a position to change the world – not just study it.”

Henry Petroski

Our learners develop an appreciation for the social, moral, environmental and cultural issues related to design as well as technical and practical competencies. We also develop the wider skills that are valued by employers such as resilience. This provides students with the broadest possible range of career opportunities available to them when they leave education.

In engineering, students are able to make practical use of knowledge gained in other curriculum areas and combine this with their designing and making tasks in order to produce high quality products. They evaluate and test their ideas, ensuring that they are suitable for a variety of users from all aspects of society. We also prepare students for a world in which technology is changing at an accelerating rate. This experience ensures that students are able to successfully complete ever more challenging tasks, embrace rapidly changing technologies and develop into informed and discriminating citizens. Our ultimate aim is that our students contribute to the creation of a better world.

Students in Engineering learn through a variety of theoretical and practical tasks. Modules of learning are broken down into Theory and practical topics/projects that engage and motivate student’s naturally inquisitive minds. We use ever developing strategies to support the learning and retention of knowledge and skill in Engineering. Most of these strategies are derived from educational research evidence such as interleaving, quizzes, competition, repetition/revision, knowledge organisers, tests etc. We couple traditional learning environments (classrooms and workshops) with virtual (online) learning to engage and support the education we provide. We also encourage our teachers to experiment, developing new techniques of their own and to use their personality to help students to learn. Examples of this are storytelling and humour. We understand that relationships are key to the success of our students.

Students have limited experience of Engineering due to the facilities and experience in primary education. We therefore focus on simultaneously developing both knowledge, skill and creativity as rapidly as we can. We decided the best way to do this is by teaching through projects. By delivering the curriculum in this way pupils learn theoretical knowledge that is related to the physical product they are manufacturing. This makes the theory work relevant and meaningful allowing pupils to apply what they are learning immediately. This is particularly important in order to help boys engage in theoretical work who, generally find this type of work less interesting. As students’ progress through the school, each topic/project builds on the previous one, increasing student’s knowledge, challenging their thinking and developing their skills.