



EGGLESCLIFFE SCHOOL
SIXTH FORM COLLEGE

**YOUNG
ENGINEERING**



CLUB

Inspiring Engineers of the future...

Dream of learning more in engineering, science, maths or technology? Want to work alongside professionals to develop and strengthen your skills? The Eggescliffe Young Engineers Club is here to help you succeed.

REALISE YOUR POTENTIAL

JOIN THE EGGESCLIFFE YEng Club

Here at Eggescliffe, we're passionate about giving our students opportunities to shine, opportunities to experience new things, opportunities to help shape them for their exciting futures.

“STEM education creates critical thinkers, increases science literacy and enables the next generation of innovators.”



FIVE REASONS WHY YOU SHOULD JOIN US

1.

Learn alongside leading industry professionals.

2.

New and exciting projects throughout the year.

3.

Extra something to write on your CV.

4.

A great way to make new friends

5.

Develop your skills whilst having fun.



WELCOME TO BATTLING ROBOTS

In association with

LABMAN

Within Robotics, you would be involved in the design, construction, operation and use of Robots. In partnership with **LABMAN** Automation, you will develop technology which can be controlled by you, the user, with the aim of defeating your opponent within the **BATTLING ROBOTS** arena.

CONNECT WITH OTHER STUDENTS

This hands on practical activity allows you to learn from other like minded people, a great way to develop friendships (until you destroy their robot that is).

IMPROVE YOUR SKILLS

This project is a great way to learn about electronics in an exciting activity. Alongside the specialists from a leading robotics business, you will be able to design a robot which will be far superior to any robot enemy who dares cross your path.



IOP North East

INTRODUCING THE UKRoC ROCKETS

In partnership with the
Institute of Physics North East

The Rocketry challenge forces students to innovate, to think creatively to meet the challenge set by the UKRoC. With expert advice from the **IOP** North East, you will be expected to design and build a rocket which will reach a set altitude, with a total flight duration and return safely to land carrying it's undamaged payload.

ROCKETRY PRINCIPLES

This explosive opportunity will allow you to learn how a rocket works, what factors affect its flight and how to overcome them.

CHALLENGE YOURSELF

You will need to call upon your maths and physics knowledge, but don't worry because there is plenty to learn with this project.

“The Rocketry competition was really good because it made you problem solve along with using multiple engineering techniques as part of STEM.”



BE INSPIRED BY

THE GREENPOWER F24



In association with

With the movement towards battery powered vehicles gathering momentum, **Greenpower** and **Cummins** bring together an opportunity to engineer a single seated racing car, and then race at Croft circuit against other schools from the region.

THE ROLE

You will be required to examine aerodynamic principles and efficiency increasing techniques in order to improve the performance of the car. You will have the opportunity to test drive and refine your car, and then race at Croft.

THE EXPERIENCE

Working with experts from the engineering world, taking part in practice sessions and racing on a circuit, you will be given the opportunity to experience the life of a race engineer from design (including 3D) to construction.



Architects design and construct buildings. They work as part of a team, just like yours. Structural, civil and environmental engineers make sure a project suits its site. Every role is important to get the job done. How can we shape a better future for everyone?

Are you ready to build a better tomorrow together?

THE ROBOT GAME

Your LEGO Mindstorm EV3 robot will have to navigate, capture, transport, activate or deliver objects. You and your robot will only have 2 and 1/2 minutes to complete as many Missions as possible.

THE INNOVATION PROJECT

Your team will identify a problem with a building or space in your community. You will present your problem and solution to a panel of experts.





Airineers

Drone Racing Challenge



Expert 3D
advice from



GET READY FOR

DRONE RACING

This Micro Class Drone event will require you to design your own drone chassis using 3D modelling software, and then to print out your design using 3D printing technology. You will then assemble your drone and practice flying in a series of events.

GETTING STARTED

You will work alongside an expert in both drone and 3D design to learn how to create your drone chassis. You will learn the principles behind quad-copter technology and pilot your aircraft in a series of testing challenges.

THE EVENT

Once you have become an expert in flying your craft, you will then work with children from our Primary schools to teach them how to fly it as they compete in an inter school Drone championship.

“Students who prepare and learn new skills are more likely to be
SUCCESSFUL
in their future studies”

MOBILE APP DEVELOPMENT

SUPERCARGE YOUR SOFTWARE ENGINEERING SKILLS

Mobile App development is the design and creation of an application which can be used on a mobile device. You will learn the principles of UI (user interface) and consider other factors such as input, size of screen and types of applications.

Endeavour.
Digital

PROGRESSION

With working alongside experts in the field of website development and Mobile App creation, you will be introduced to the key skills required in programming software for use on mobile phones and other portable devices.

WHAT CAN YOU STUDY

Taking part in activities such as this will enable you to prepare for qualifications in Computer Science and Computing & Web undergraduate courses at university.



ATKINS

In association with

Civil Engineering

TREATING

THE WORLD'S MOST PRECIOUS RESOURCE

3.5 million people (W.H.O figures) die every year due to dirty water related diseases. In partnership with **ATKINS** Civil Engineering, you will learn how to create a water filtration system to produce clean and safe drinking water.

SITE VISIT

To fully understand the issues of water, you will visit a water treatment facility locally to get a feel for the problem.

You will design a treatment solution which could be used in areas which need it the most.

EXPERT ENGINEERS

Working alongside experts of Civil Engineering, you can find out the different disciplines of engineering. You will find the different infrastructure needed to make our villages, towns and cities safe and inhabitable.



in Schools

INTRODUCING THE WORLD OF FORMULA ONE

In this activity you will be inspired to use IT to learn about physics, aerodynamics, design, manufacture, branding, graphics, sponsorship, marketing, leadership/team work, media skills and financial strategy. Then apply these skills in an imaginative and exciting way.

NEXT LEVEL ENGAGEMENT

This project requires you to raise sponsorship and manage budgets to fund research and construction.

Your portfolio will showcase all of your skills from concept to creation using a 3D printer.

WITH A WHOOSH...

Shoot along a 20m track powered by a small CO₂ canister in the rear of your car.



STEM EDUCATION REVOLUTION

Take industry leading technology, like quadrature encoders and current monitors in every Smart Motor, package it together to create the VEX IQ Robot. Compete against other schools in programmed and user controlled events.

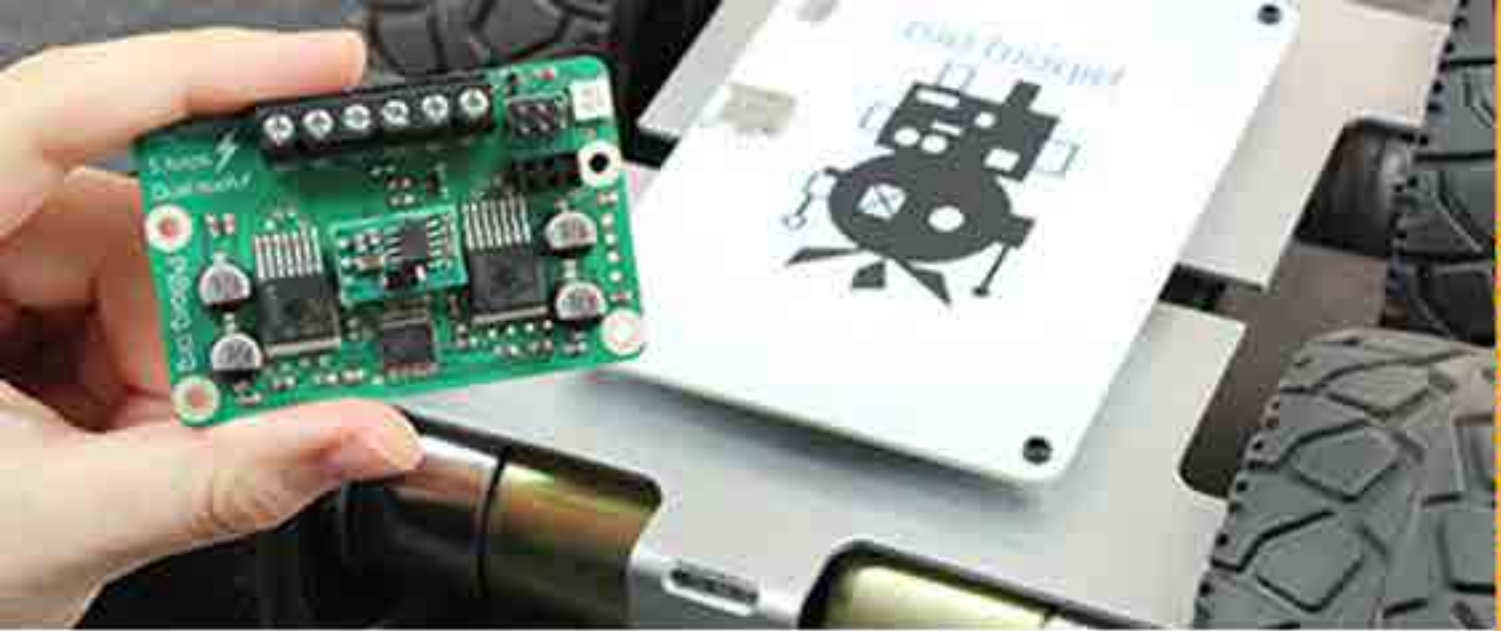
THE DETAILS

Work with your alliance partner to score as many points as possible in one of two ways, by scoring balls on or in cubes and by moving cubes to their scoring zones.

THE GAME

Two robots compete in a 60 second long match, working collaboratively to score points. User controlled game and also an autonomous challenge.





“DRIVE FORWARD” IS THE NEW

“HELLO WORLD”

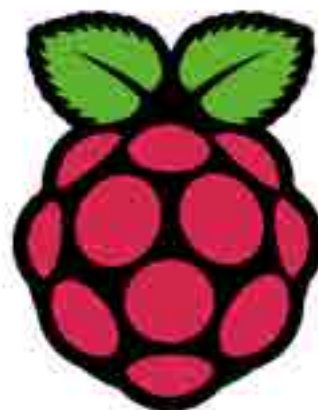
The future of transportation (some say) is autonomous vehicles. Using the ground breaking RaspberryPi computer, sensors, a set of wheels and some code, learn how to programme your very own driverless car.

SELF DRIVING ROBOT

This is a project which will certainly challenge your computational thinking, resilience and determination. You will work alongside some leading professionals in the region, with a chance to send your code off to compete in the FormulaPi challenge.

AUTONOMOUS CARS

Test yourself to see if you can take control of safety, navigation and operation of a vehicle from the comfort of your computer desk.



RaspberryPi

TALKS FROM THE GIANTS OF INDUSTRY

Throughout the course of the year, the Young Engineers will have visits from leading experts and organisations.

Some are confirmed, whilst others will be announced at set times during the academic year.

Just another chance to see more avenues available to you in the Engineering Sphere.



HOW TO APPLY

Name Form

Applications are anticipated to be high to join the Young Engineers Club, there are a limited number of spaces available. Outline below why you should be considered for a place within the group (continue on a separate sheet if necessary). Some of the projects will require you to take part in an interview with the Engineers. All applicants will be given the opportunity to attend the talks and presentations given by Engineering companies throughout the year.

Preferred project(s) - tick all that apply



- | | | | |
|-----------------|--------------------------|-------------------|--------------------------|
| Battling Robots | <input type="checkbox"/> | Rocketry | <input type="checkbox"/> |
| Greenpower F24 | <input type="checkbox"/> | App creation | <input type="checkbox"/> |
| VEX IQ Robotics | <input type="checkbox"/> | Lego Robots | <input type="checkbox"/> |
| F1 in Schools | <input type="checkbox"/> | Micro Drones | <input type="checkbox"/> |
| Water Treatment | <input type="checkbox"/> | Raspberry Pi cars | <input type="checkbox"/> |

Signed

Forms to be submitted to Student Services by Friday 27th September