

# Engineering Education Scheme

England & Scotland



# EES Midlands Stakeholder Report 2014



## **EES in the Midlands, 2013-14, Our 29<sup>th</sup> Year!**

The academic year 2013/2014 has yet again been a very successful one for EES as reported below. But without your support we could not provide this opportunity to so many young people. On their behalf I thank you for your interest in EES and look forward to working with you in the coming year.

Everybody knows about the chronic skills shortage UK engineering faces. Everything that we at EDT do as a charity is about encouraging young people into STEM careers. However with EES we are even more ambitious in our goals. Alongside encouraging young people into STEM careers, EES introduces young people into the **actual skills and competencies** needed to thrive as an apprentice or graduate engineer.

As one supporting engineer puts it *“EES has transformed 4 uncertain students into mature budding engineers with a good understanding of a future career path”*.

The scale of the engineering skills shortage means we are also ambitious regarding the need for engineering to engage with **as many school types as possible**. We are pleased that inner city, suburban and rural schools are all represented. But also in an age of ever more diversity (and at times confusion) regarding types of schools, we are delighted that EES gives engineering companies a sustainable framework for introducing their skills into any type of post-16 school environment

This year we are delighted to report EES Midlands partnerships introducing engineering skills into: **Academies, UTC's, Girls, Boys, 6<sup>th</sup> Form Colleges, Science Specialist, Comprehensive, Grammar and Independent Schools/Colleges.**

Finally, in the coming academic year, EES celebrates its 30<sup>th</sup> anniversary, and it is an achievement that we are very proud of. In that time, over 30,000 young people have been introduced to engineering via EES. Alongside demonstrating the impacts of this year's EES activity on young people, we are also able to show some key findings regarding the careers of former EES participants that we can share in this report.

Geoff Jellis  
EDT, Director for the Midlands, May 2014.

## Report Highlights

### EES Alumni

75% of EES Alumni obtained an Engineering or Technology role as their first full time job.

91% of EES Alumni who went to university chose a STEM degree.

Only **7%** of professional engineers in the UK are female, however, **22%** of EES Alumni choosing engineering careers are female. EES is an effective tool in bridging the engineering gender gap.

### EES Midlands Participants 2013-14

#### **Students**

90% of students are interested in a job in their link company or industry sector, and almost all students will be going on from The EES to study a STEM related degree.

- *"I would definitely recommend this to people to partake in next year. It has helped me see what working on future engineering projects will be like."*
- *"The scope of engineering is far greater than I had realised prior to taking part in the scheme."*

#### **Companies**

87% of engineers said they expect their company to continue to support EES. 13% of engineers don't know at this time. **0%** expected not to continue.

94% of engineers said they would consider employing members of the team as a trainee engineer if the opportunity arose.

- *"In our business, if you want to lead the world, you have to stay one step ahead of the competition. EES is helping us to do this."*

#### **Teachers**

Over 95% of teachers believe as a result of participating in EES, their students will make better university and apprentice candidates.

## About EES' 30<sup>th</sup> Year

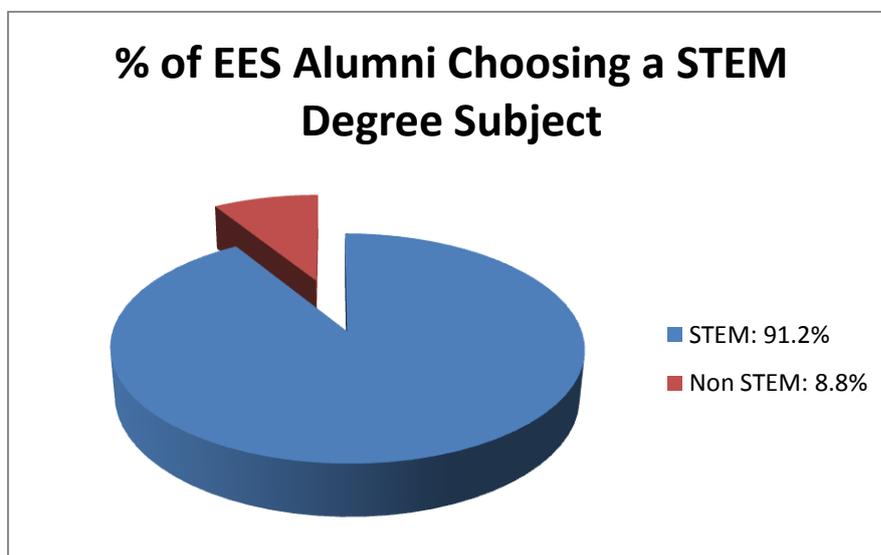
In October 1984 the first groups of EES students started their projects. Since then well over 30,000 young people in total have had their first taste of engineering through EES.

During April 2014 we were able to canvas 500 former participants of the scheme and get an understanding of how EES influenced *their* career paths.

Below are some key highlights.

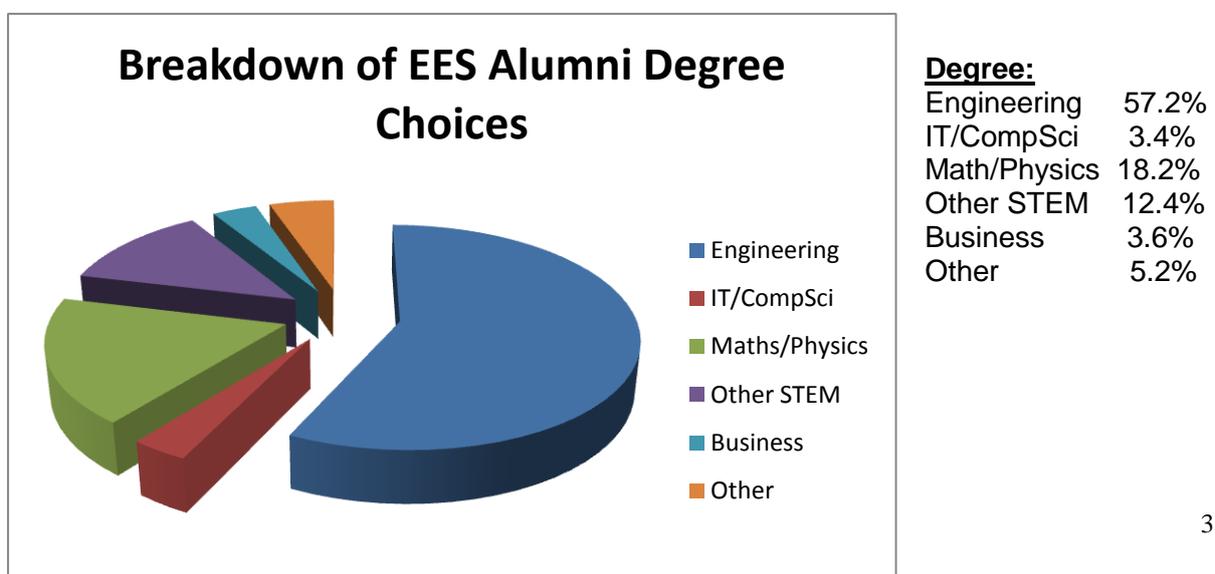
## EES Alumni Degree Choices

The chart shows the percentage of 500 former EES participants that went on to study a STEM degree subject.



We can see that over 90% did in fact go on from EES to study a STEM degree subject.

The chart below demonstrates the breakdown of these degree choices.

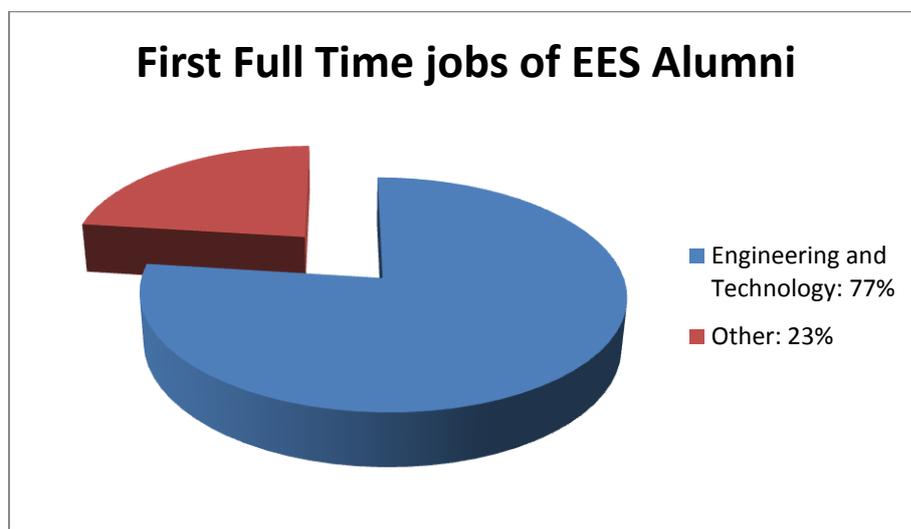


With the majority choosing Engineering, followed by Maths, Physics and other STEM subjects like Computer Science, it gives a real representation of how EES encourages careers in to these areas.

### **EES Alumni First Full Time Jobs**

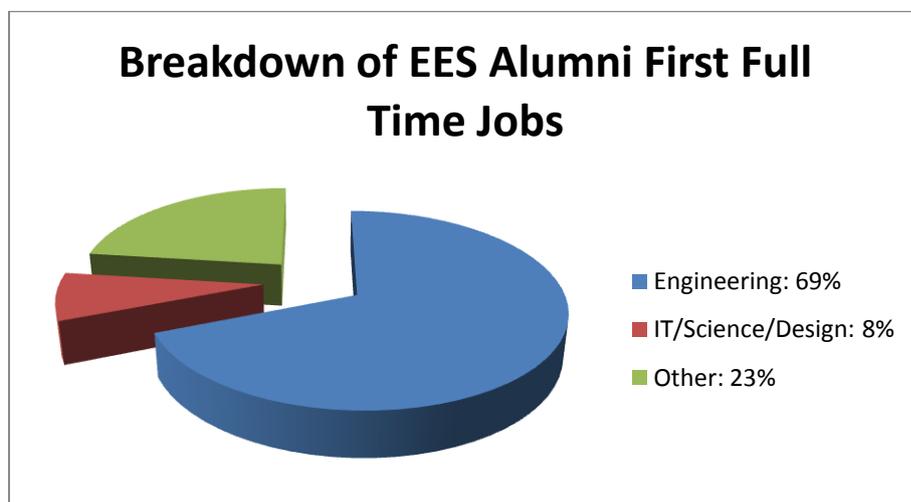
To gather an idea of how many past EES participants went on to gain an engineering role as their first full time job, we collated this information as shown below.

The statistics shown here are based on EES Alumni and their first full time jobs, following on from participating in the EES.



With over 75% obtaining an Engineering or Technology role as their first full time job, it demonstrates how EES helps equip young people with the correct skills, knowledge and basis to get an excellent head start in to a career in engineering.

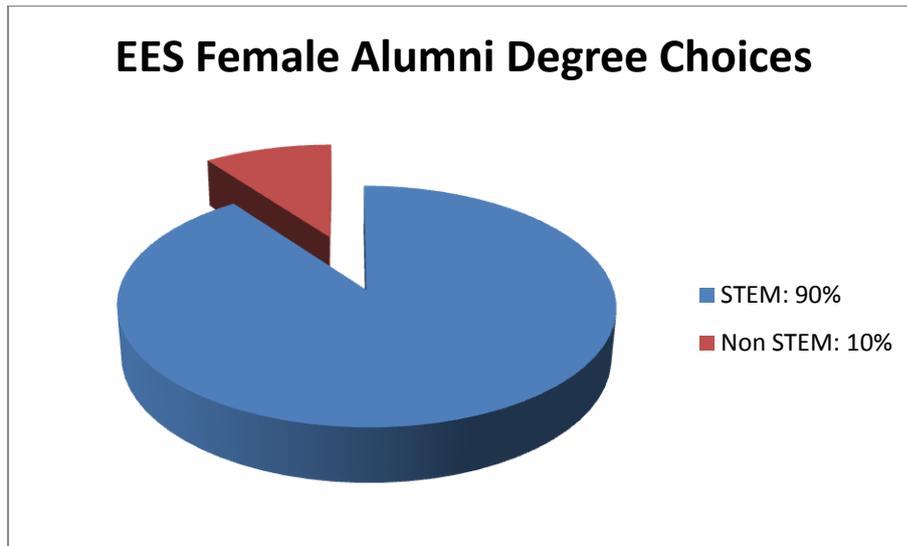
The chart below shows the percentage of those going in to Engineering specifically as their first full time job, with a breakdown of areas.



## EES Inspiring Female Engineers

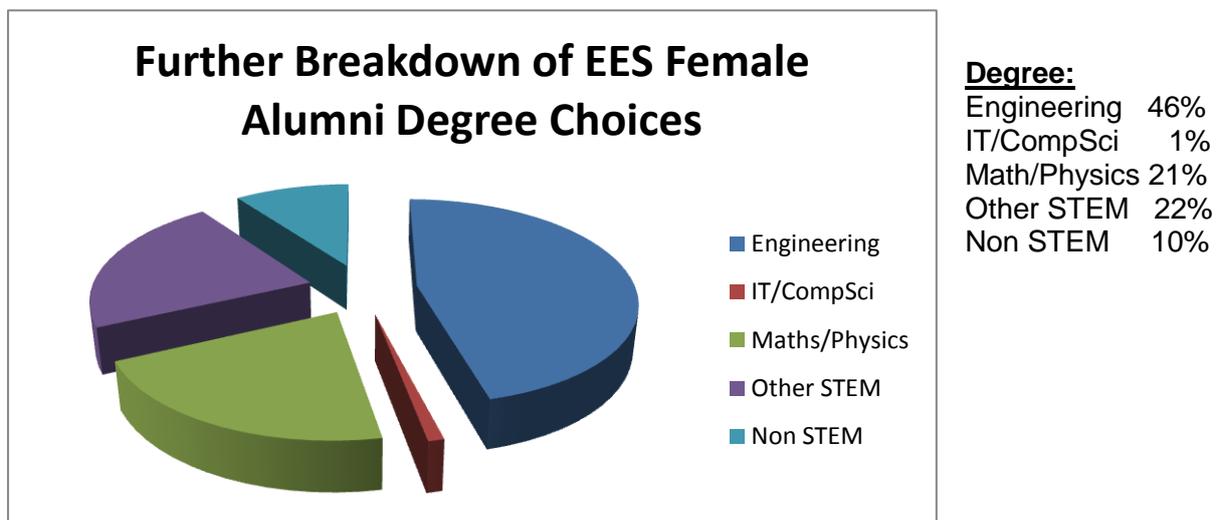
Over 9,000 young women have been introduced to the world of engineering, via the EES.

The charts and statistics below demonstrate what percentage of women went on from the Scheme to study a STEM related degree.

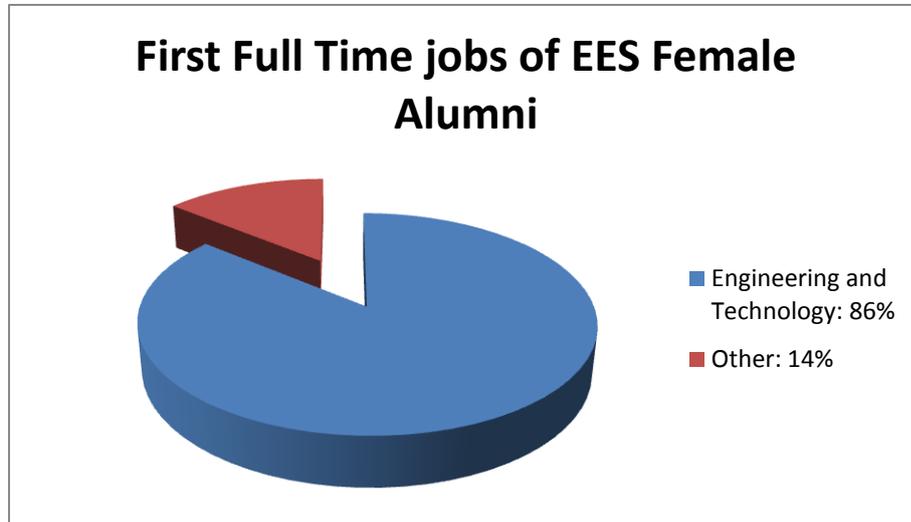


With 90% of past female participants of EES going on to study a STEM related degree, it demonstrates what role and influence The EES is having on capturing these women at a young age to consider STEM and then go on to a career in STEM.

The chart below demonstrates the breakdown of these degree subjects:



When you look at our female Alumni's first full time jobs, you see continued preference towards STEM careers generally with engineering being by far the most popular.



Only **7%** of professional engineers in the UK are female. **22%** of EES Alumni choosing engineering careers are female.

That means that female EES Alumni make up over **3 times the % share** of female engineers than is in the general UK engineering population.

We leave the final word on this section to one of our supporting teachers, Susan Mighall from Rugby Girl's High School who described the real impact EES had on 2 groups of female EES students:

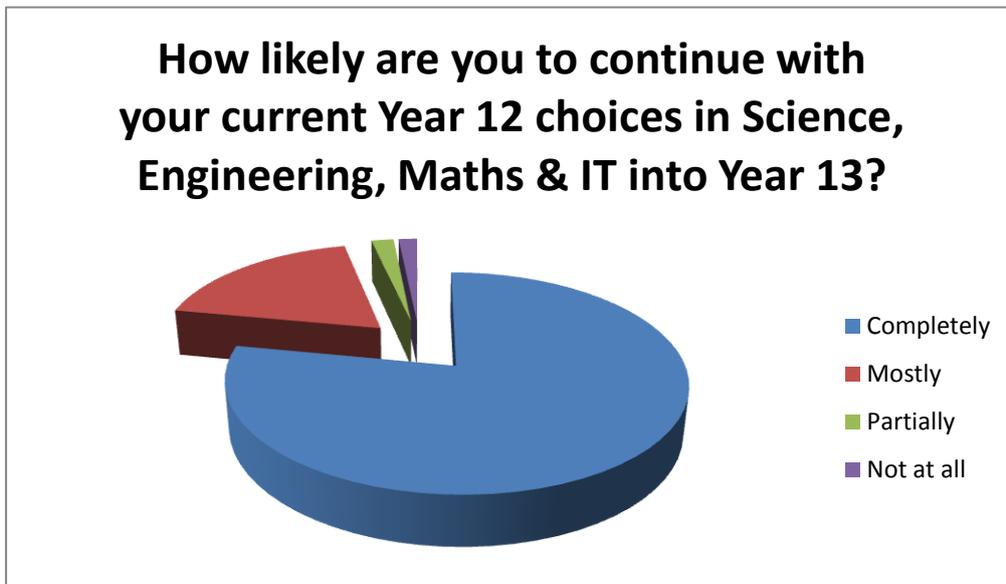
*"Many past students have got into (engineering) university courses or on apprenticeship schemes, via their experience from doing the project. Indeed it has even inspired some to change career ideas in engineering..."*

*The scheme encouraged 3 of the 4 (girls participating this year) to take up careers in engineering. By entering the project at the National Science and Engineering Competition, a past team were approached to take their project to the International World Water Competition in Stockholm as UK winners. They attended for 5 days, all expenses paid. A thrilling experience of where their project was able to take them".*

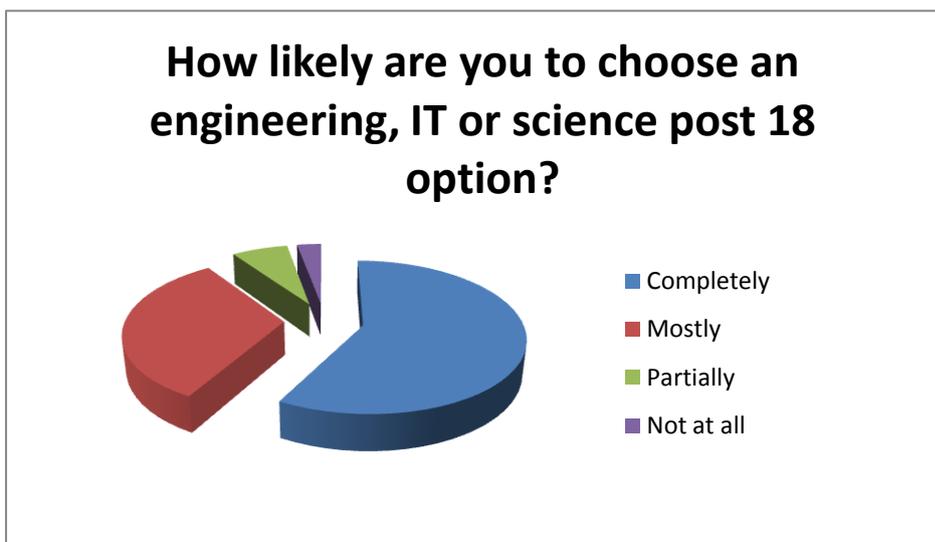
## **About the Students' EES Experience**

Close to 70 different schools and approximately 350 students participated in EES, just in the Midlands region alone, this year.

To gain an insight in to the students' experience, the following questions were asked to this year's participating EES students; answers demonstrated via the charts below.

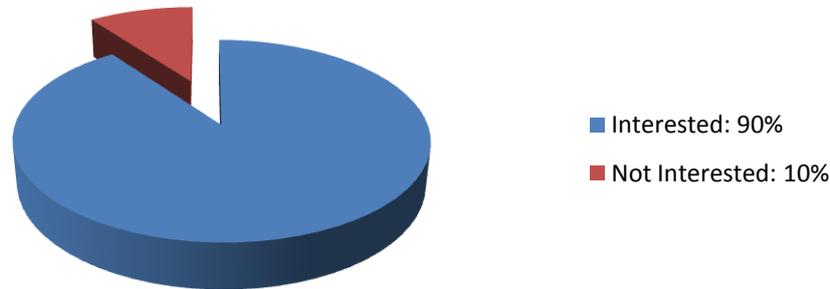


We can see here that after taking part in EES, almost all students will be carrying on their STEM choices for the next academic year, completing their qualifications in A-Levels, BTEC's etc. in STEM subjects.



And thinking further than just the next academic year, on to university degree choices, apprenticeships etc almost all students indicated that they would most likely be selecting a STEM subject.

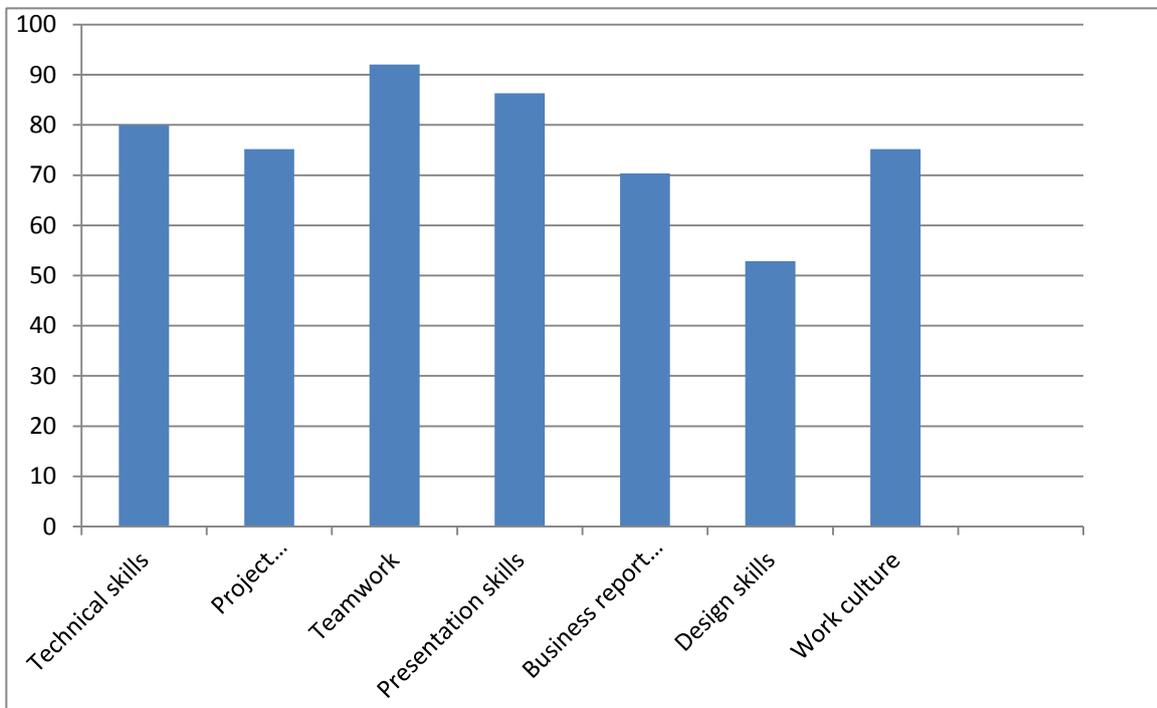
## How interested are you in a career in your link company or their industry sector?



Success can be seen with these stats, showing that 9 out of 10 students who participated in EES are interested in a career in Engineering/STEM.

Students were also asked a question regarding essential skills needed to pursue a career in engineering. They were asked to tick all that they felt they had improved whilst participating in The EES;

**“As a result of participating in EES which of these skills/knowledge bases (tick all that apply) have you improved?”**



The chart above shows what percentage of students ticked each option. With these skills being vital in an engineering environment, it's great to see so many students feel they have improved on them vastly. A student said: *“I think EES is a brilliant scheme and has helped a lot of my skills and developed them further.”*

### **Student Statistics:**

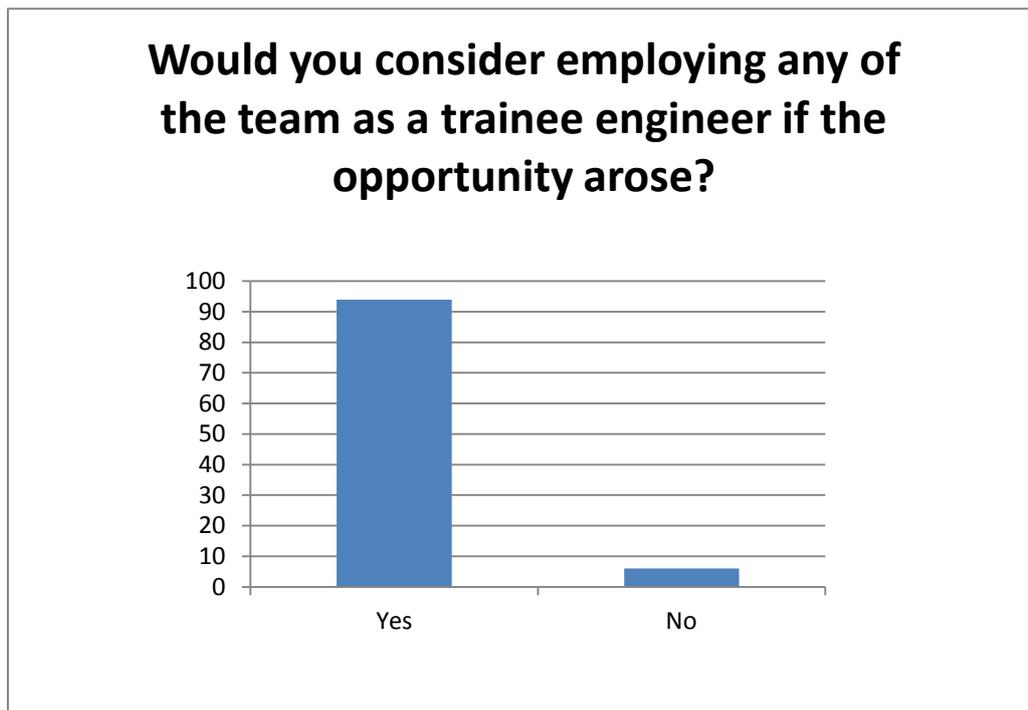
93% of students this year felt that EES had benefited them in terms of personal development and 90% felt it had developed their employability skills and competencies.

When asked: “Will you use your experience of EES to strengthen your applications to University, Apprentice programmes or other post 18 applications?”, 99% answered Yes.

80% of students also felt that their EES experience has given them a better understanding of the practical applications of STEM. 12% of students felt that they did not know at this time.

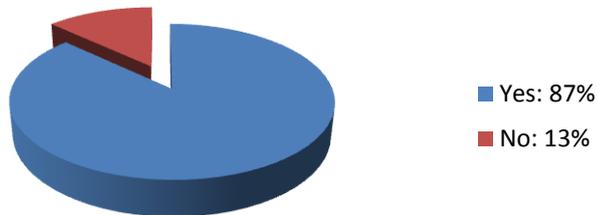
### **About the Engineers’ EES Experience**

The following questions were asked to this year’s participating Engineering Mentors.



When asked if they would consider employing any of the students in their EES team, 94% said they would. This demonstrates the level of skill and potential that the students show and develop during their time on EES.

## Has EES been relevant to your own professional development?



And in terms of own, professional development as an engineer and/or mentor, 87% felt it had been relevant.

One engineer said: *“EES provided an ideal opportunity to develop mentoring skills whilst allowing us to guide the students through an engineering problem. EES offered a two-way learning opportunity.”*

### **Engineer Statistics:**

When asked: “Is the scheme relevant to your company’s needs?”, 98.5% of engineers said Yes.

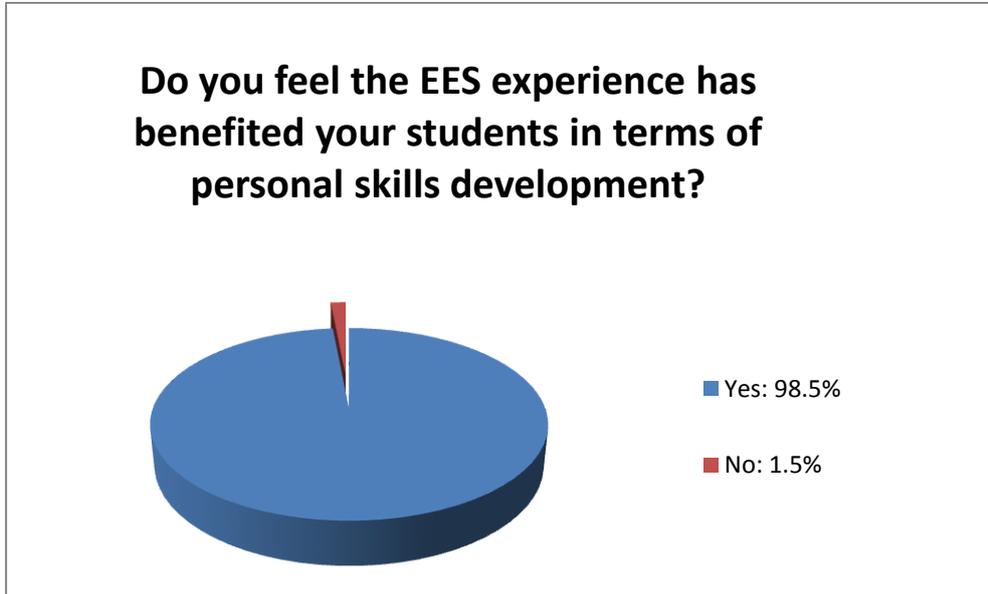
When asked: “Does EES promote to students the skills and competences they need to become apprentice or graduate engineers?” 98% of engineers said Yes.

93% of engineers said they felt that the EES experience had improved the students’ employability Skills. 87% of engineers said they felt that the EES experience had given the students a greater understanding of the world of work.

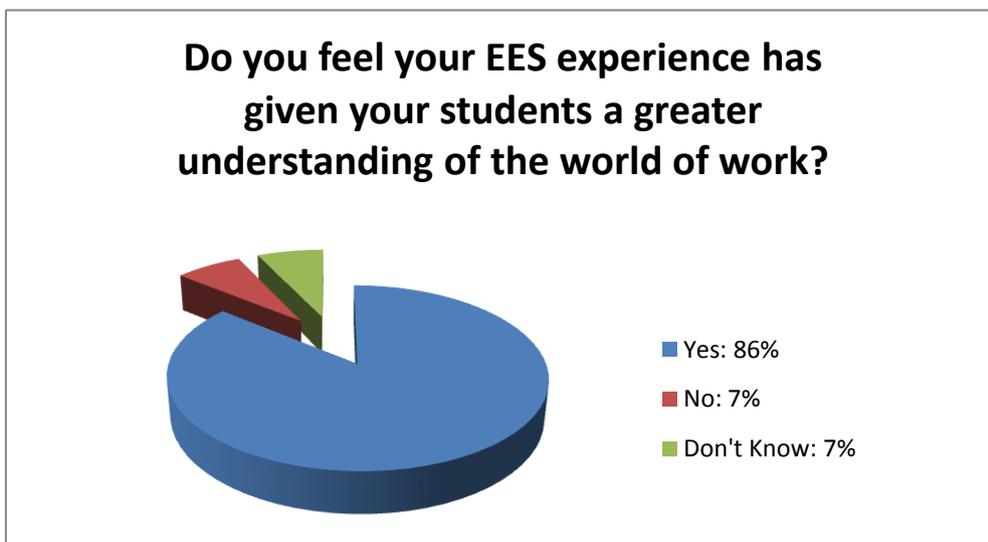
Encouragingly for next year’s students, 87% of engineers said they expect their company to continue to support EES. 13% of engineers don’t know at this time. 0% expected not to continue.

## **About the Teachers' EES Experience**

The following questions were asked to this year's EES participating Teachers, answers demonstrated via the charts below.

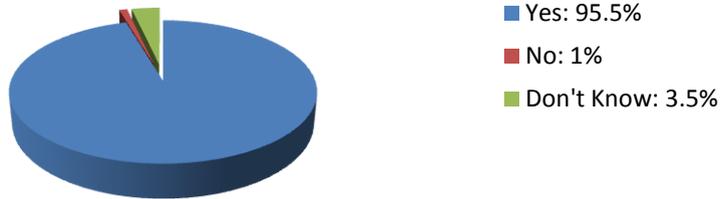


98.5% of teachers felt that EES benefited their students, regarding personal Skills development. This is a positive for all involved. A teacher said: *“Problem solving and team building skills have been developed far beyond any reasonable expectations.”*



When asked: “Do you feel your EES experience has given your students a greater understanding of the world of work?” a fantastic 86% said yes. Giving students a realistic understanding of the world of work and an engineering environment is an important benefit of EES.

**As a result of participating in EES, do you consider that your students will make better university or apprentice candidates?**



..And of course preparing students for options post sixth form or college, is a key part of EES.

### **Teacher Statistics:**

When asked: “Has the EES experience given your students a better understanding of the practical applications of STEM?”, 88% of teachers said Yes.

76% of teachers said that EES has been relevant to their own professional development.

### **List of Schools and Companies Participating In EES 2013/14:**

The following list shows the partnerships between schools and companies for EES 2013/2014.

<b>School Name</b>	<b>Company Name</b>
Alleyne's Academy	ABB Limited
Aston University Engineering Academy	Network Rail
Bablake School	Arup
Bishop Challoner Catholic College	Network Rail
Bishop Vesey's Grammar School	Amey
Bordesley Green Girls' School	B Mason & Sons Ltd
Boston Grammar School	Guttridge Services Ltd
Bridgnorth Endowed School	Bridgnorth Aluminium Ltd
Brooke Weston Academy	MGWSP
Brooke Weston Academy	Benteler Automotive UK Ltd
Codsall Community High School	Defence School of Aeronautical Engineering
Coundon Court School	Unipart Eberspacher Exhaust Systems

Countesthorpe Community College	CROWN Bevcan Europe & Middle East
Duston School, The	Galliford Try Construction
East Leake Academy	Alliance Boots
Heanor Gate Science College	Rolls-Royce
Highfields School	Mahle
JCB Academy 1, The	JCB Group
JCB Academy 2, The	JCB Group
John Henry Newman Catholic College	Jaguar Land Rover
John Taylor High School	GKN AutoStructures
Kineton High School	Aston Martin
King Edward VI Aston School	National Grid
King Edward VI Camp Hill School (Boys)	Eaton Ltd
King Edward VI Camp Hill School (Boys)	Aero Engine Controls
King Edward VI Camp Hill School for Girls	Network Rail
King Edward VI College Stourbridge	NES Nuclear Engineering Services Ltd
King Edward VI Five Ways School	Severn Trent Water
King Edward VI High School for Girls	Arup
Kind Edward VI School Stratford	Warwickshire County Council Communities Group
King Edward VI Sheldon Heath Academy	National Grid
King Edward VII Science & Sport College	Caterpillar UK Ltd
King Edward VII Science & Sport College	Terex
King Henry VIII School	Rolls-Royce
Kings Norton Boys School	Thorlux Lighting Ltd
Landau Forte Academy, Tamworth	The University of Birmingham
Landau Forte College, Derby late Friday	JCB Group
Leicester Grammar School	Alstom Power
Littleover Community School, The	Aero Engine Controls
Long Eaton School	Alliance Boots
Lordswood 6th Form Centre	Network Rail
Loughborough High School	Greene Tweed & Co Ltd
Moorlands VI Form College	JCB Group
Netherstowe School	GKN Driveline Ltd
Newport Girls' High School	GKN Wheels Telford
Oakham School	Pera
Oakham School	Mecc Alte UK Ltd
Pershore High School	Worcester Bosch Ltd
Queen Elizabeth's Grammar School	JCB Group
Ratcliffe College	Loughborough University
RSA Academy 1	Caparo

RSA Academy 2	Tata
Rugby High School	Alstom Power Ltd
Rugby School	CEMEX UK Cement Ltd
Rugeley Sixth Form Academy	Rugeley Power Ltd
Shrewsbury Sixth Form College	GKN AutoStructures
Shrewsbury Sixth Form College	GKN Driveline Ltd
Shrewsbury Sixth Form College	Ingimex Ltd
Sidney Stringer Academy	Jaguar Land Rover
Solihull College (Woodlands Campus)	Aero Engine Controls
Solihull School A	Jaguar Land Rover
Solihull School AA	Jaguar Land Rover
St Joseph's College	JCB Group
St Mary's RC High School	Rolls-Royce
Stamford School	Cummins Generator Technologies
Stratford-upon-Avon School	Severn Trent Water
The Chase School	UTC Aerospace Systems
The Chase School	QinetiQ
The King's School, Worcester	Honeywell Hymatic
Thomas Telford School	JN Bentley
Thomas Telford School	MAHLE Filter Systems UK Ltd
Toot Hill College	Alliance Boots
Wednesfield High School	JN Bentley
Wednesfield High School	Hadley Group
William Brookes School	E.ON UK PLC
William Farr CE Comprehensive School 1	EDF Energy
William Farr CE Comprehensive School 2	EDF Energy
Wolverhampton Girls' High School	HS Marston
Wolverhampton Grammar School 1	NES Nuclear Engineering Services Ltd
Wolverhampton Grammar School 2	HS Marston

### Workshop Hosts:

- University of Birmingham
- Birmingham City University
- Loughborough University



## **Comments and Feedback From This Year's EES Participants:**

To end, we'd like to share some of the feedback we received for this year's EES.

### **Students:**

- *"I would definitely recommend this to people to partake in next year. It has helped me see what working on future engineering projects will be like."*
- *"The scope of engineering is far greater than I had realised prior to taking part in the scheme."*
- *"Invaluable for my future aspirations."*
- *"A selling point is transferable skills. Although I want to be a chemical engineer rather than my company's specialism, I feel like I've learned much that I can transfer to my chosen engineering specialism".*

### **Teachers:**

- *"The scheme has definitely revealed a new world of career opportunities to the girls."*
- *"This scheme gives the students an opportunity to develop their personal skills vastly beyond what most 16-18 year olds have the opportunity to do.. It is extremely beneficial to those students who take part."*
- *"A thoroughly rewarding experience, the students gained a valuable insight into engineering, technology and the world of work and had a great time in the process!"*

### **Engineers:**

- *"EES highlights how fresh young minds can tackle problems in innovative ways and the need for investment in the future of young engineers."*
- *"The scheme remains one of the best opportunities to grow and develop potential young engineers through real life projects."*
- *"In our business, if you want to lead the world, you have to stay one step ahead of the competition. The EES is helping us to do this."*
- *"Education prior to university tells little about the world of work and different industries. The EES gives students a chance to see industry and such a thing is vital in choosing a profession."*

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# Engineering Education Scheme

EDT (Engineering Development Trust) is a registered charity in England and Wales (1156066) and in Scotland (SC039635), and is a company limited by guarantee (number 8879288).

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Hands-on STEM activity days for Year 7-11 & S1-S5 (11-16 yr old) students



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Real life 6 month STEM projects for Year 12 & S5 (16-17 yr old) students



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Career development paid work placements for Pre-university and Undergraduate students