

# **Arkwright Engineering Scholarships Handbook**

**A reference for  
Teachers, Parents and Students who are applying for  
and in receipt of  
Arkwright Engineering Scholarships**

**Academic Year 2018/19**

**Issue 3**

## OUR PURPOSE

Arkwright Engineering Scholarships exists to identify, inspire and nurture future leaders in Engineering. We do this by awarding prestigious Arkwright Engineering Scholarships, through a rigorous selection process, to high-potential students who apply during year 11 (England and Wales), S4 (Scotland) and year 12 (Northern Ireland). Our Engineering Scholarships support students through their A Levels / Scottish Advanced Highers (or equivalent exams) and encourage students to pursue Engineering at university or through a higher-level apprenticeship and to take up Engineering careers.

The Arkwright Engineering Scholarships are the most prestigious awards of their type in the UK. Our Scholarships are sponsored by a range of industrial and commercial companies, charitable trusts, professional engineering organisations, universities, trade associations, the Armed Services, schools and personal donors. Sponsors are encouraged to develop links to their Scholars.

We also offer a small number of Undergraduate Scholarships to support an elite group of existing Arkwright Engineering Scholars through university.

## FOREWORD

This Handbook has been compiled for: teachers who wish to submit students for consideration for Arkwright Engineering Scholarships; student applicants; applicants' parents/guardians; Arkwright Engineering Scholars; Scholars' parents/guardians.

This Handbook includes the criteria for school affiliation, the scholarship application process and details of how the Scholarships are administered. The handbook is revised periodically to take account of any changes in the curriculum or to Arkwright's processes.

**The back page lists the contact details for each member of the Arkwright team mentioned in this Handbook.**

Any questions that are not answered in this Handbook may be directed to [enquiries@smallpeicetrust.org.uk](mailto:enquiries@smallpeicetrust.org.uk) or to the Senior Operations Coordinator.

**[www.arkwright.org.uk](http://www.arkwright.org.uk)**

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# 1. AFFILIATING YOUR SCHOOL

Affiliation to Arkwright Engineering Scholarships is quick, simple and **free**. To be considered for affiliation schools should:

- have students in year 11 (England and Wales), S4 (Scotland) or year 12 (Northern Ireland), who are studying GCSEs, Scottish National 5s, BTEC level 2s or equivalents in Science, Technology, Technical Design, Engineering, Construction or Maths (hereafter referred to collectively as “STEM”)
- have a Head Teacher who is a staunch supporter of STEM in the curriculum
- offer students opportunities to participate in STEM enrichment activities outside the curriculum
- actively encourage students to reach their maximum potential.

Affiliated schools/colleges must also be willing to host the Arkwright Aptitude Exam at the school/college for applicants from feeder schools (see Section 4.3).

If your school meets the criteria, above, you can:

- download an affiliation form from <http://www.arkwright.org.uk/downloads/arkwright-documents/affiliation.pdf> and return it to Arkwright’s Senior Operations Coordinator (see the address on the affiliation form). Once we receive your affiliation form you will be sent details of how to submit applicants. Your affiliate status will be formalised as soon as you submit your first applicant.

Or

- you can contact the Senior Operations Coordinator at Arkwright HQ to arrange for your local Arkwright Liaison Officer to visit your school to meet the Head Teacher and/or Head of a relevant STEM Department to discuss the Arkwright Engineering Scholarships before you decide to affiliate the school or not.

Once your school is affiliated, all our communications will be sent to the ‘link teacher’ that your school has identified as overseeing Arkwright.

## Transferring a Scholarship between Schools

If:

- a student applies for and is awarded a Scholarship while at an affiliated feeder school, and takes up his/her Scholarship at another school/college; or
- a Scholar changes school part-way through his/her Scholarship

then:

- the first year’s school financial award will be given to the school of application
- the second year’s school financial award will be given to the school/college that the Scholar moves to provided that the school/college is, or becomes, affiliated and subject to satisfactory First Year Reports (see Section 8)
- If the school/college that the Scholar moves to does not become affiliated then the Sponsor will be consulted about whether the second year’s school financial award should be withdrawn, given to the original school of application, or otherwise - any decision being at Arkwright’s discretion.

## 2. ENGINEERING SCHOLARSHIP APPLICATION CRITERIA

### 2.1 Application Criteria

Arkwright Engineering Scholarships is committed to ensuring that we inspire and nurture creative and talented young people in the field of Engineering; people who are capable of becoming tomorrow's leaders – be it a captain of industry, a dedicated engineering team leader or a world-leading academic researcher.

To be considered for an Arkwright Engineering Scholarship:

- The applicant's school/college must be affiliated to Arkwright Engineering Scholarships (this affiliation can occur immediately before a student application – see Section 1)
- Applicants must be in year 11 (England and Wales), S4 (Scotland), year 12 (Northern Ireland) and about to take GCSEs, Scottish National 5s, IB Standards, BTEC level 2s or equivalent
- Applicants must show a strong practical interest and ability in Engineering. This should be demonstrated through a practical project they have done. This could be as part of their coursework for GCSE Design & Technology (England & Wales), or GCSE Technology & Design (Northern Ireland). In Scotland there is some scope for practical project work within the Engineering Science Assignment. Applicants may, alternatively, present other GCSE/National 5 projects, or a personal project conducted outside of the school curriculum at school or home
- Applicants must be planning to take A levels, BTEC level 3s, Scottish Highers and Advanced Highers, IB Higher and Advanced Higher or equivalent examinations in subjects relevant to a university degree or a higher-level apprenticeship in Engineering. Students are advised to refer to their preferred university or higher-apprenticeship provider for specific entry requirements
- Applicants must make a commitment to study Maths to A2 (England, Wales & Northern Ireland), or Advanced Higher (Scotland)
- Applicants must be actively considering a university degree or higher-level/degree apprenticeship in Engineering and a career as a professional Engineer. To be clear:
  - Pure Sciences (Physics, Chemistry, Biology) and pure Maths are not valid career choices for an Arkwright Engineering Scholarship.
  - Computing and software engineering are valid career choices for an Arkwright Engineering Scholarship.
  - Chemical Engineering is a valid career choice for an Arkwright Engineering Scholarship.
  - Product Design is a valid career choice for an Arkwright Engineering Scholarship provided that the candidate's interest lies with the technical aspects of Design, rather than the aesthetic.
  - Architecture is not a valid career choice for an Arkwright Engineering Scholarship, but Architectural Engineering is i.e. a student's architectural interest must lie with stresses, strains, materials properties etc. and not with aesthetics
  - Medicine/Dentistry/Psychology/Veterinary Science are not valid career choices for an Arkwright Engineering Scholarship (but biomedical engineering and medical physics/engineering are acceptable)

Arkwright Engineering Scholarships cannot be awarded to students who decide to leave school at the end of year 11 (England and Wales), S4 (Scotland) and year 12 (Northern Ireland), to pursue apprenticeships or other career options. Scholarships are only awarded to students who remain in full-time, school/college-based education in order to achieve A levels, Scottish Highers/Advanced Highers, IB Highers/Advanced Highers, BTEC level 3s or equivalent examinations.

## **2.2 Policy for students on GCSE/Scottish National 5 fast track**

Students who take some GCSEs/ Scottish National 5 qualifications in year 10 (England and Wales) / S3 (Scotland) / year 11 (Northern Ireland) and others in year 11/S4/12 should apply for their Arkwright Engineering Scholarship in year 11 (England and Wales), S4 (Scotland) and year 12 (Northern Ireland).

Students who complete all their GCSEs/Scottish National 5 qualifications a year early should apply to Arkwright in that year.

## **2.3 Policy for Home Educated Applicants**

Students who are home educated may apply for an Arkwright Engineering Scholarship in the year in which they take their GCSEs, National 5s or equivalent exams. The application's supporting reference must be completed by the student's main Science/Maths/D&T/Computing Tutor (in lieu of a school teacher) and the Arkwright aptitude exam must be completed at the nearest Arkwright affiliated school that is also submitting student candidates in that year's application round, or at the school/college at which the student will subsequently complete his/her A levels/Scottish Highers or equivalent, if that school/college is affiliated to Arkwright.

If a home educated student is successful at securing an Arkwright Engineering Scholarship, then the first year's school £200 financial award will be paid to the student's main Science/Maths/D&T Tutor to aid his/her tutoring of all his/her clients. Where the student moves to a school/college to complete his/her A levels, the second year's school £200 financial award will be paid to that school/college if it is affiliated to Arkwright. Where the student will be home educated for A levels/Scottish Highers or equivalent, the second year's school financial award will be paid to the student's main Science/Maths/D&T Tutor to aid his/her tutoring of all his/her clients.

## **2.4 Policy for students on leaving full-time education or changing career aspirations**

If students leave full-time school/college-based education, change career aspiration away from Engineering, or elect to drop A Level/Advanced Higher Maths, after they have been offered a Scholarship in June/July/August but before the formal Awards Ceremonies in the autumn they **must** immediately notify Arkwright in writing (e-mail is sufficient), explaining the reasons and stating their proposed career route. Each case will be reviewed on an individual basis by Arkwright and the Sponsor. Possible outcomes of such reviews, made at the absolute discretion of Arkwright, are:

- The Scholarship may be withdrawn completely, and the student cannot call themselves an Arkwright Scholar (though the student may still state that they passed the Arkwright selection process but had to relinquish the Scholarship).
- In some circumstances, the student may continue as an Arkwright Engineering Scholar and the school and Scholar will continue to receive their financial awards.

## **2.5 Policy for transgender students**

Arkwright Engineering Scholarships is fully committed to equal opportunities for all the people it works with as set out in, for example:

- The Human Rights Act 1998
- Gender Recognition Act 2004
- The Equality Act 2010

Where it is made known to Arkwright during Arkwright application/selection that an applicant is undergoing or has completed gender transition then we will proceed as follows:

- So far as is reasonably practicable we will treat the individual in all our day-to-day dealings and communications with them and others by the name and gender they wish to be
- Where an applicant has legally changed their name to show their gender transition, we will ensure all our records refer to the Scholar by the gender and name they wish to be known by going forward, and do not refer to any gender transition.
- Should the applicant be selected for the interview phase we will work with the hosts of any Arkwright interview event to ensure that the individual is treated as the person they wish to be by all host staff, within the limits of the host organisation's transgender policy. If we are made aware of an individual's gender transition prior to an Arkwright event we will obtain a copy of the host organisation's transgender policy to be shared with the individual and his/her parents and teachers as appropriate, so that any issues can be dealt with prior to the event. Where necessary, a Risk Assessment will be produced prior to the day to cover any areas of concern for both the individual and the host organisation.

All personal data held by Arkwright about an Arkwright applicant, Scholar or alumni is confidential and is not shared with any other party without the prior agreement of the individual (or their parents/guardian if they are a minor).

### 3. BENEFITS

The key benefits to Scholars are:

- Arkwright Engineering Scholarships are widely respected by academia and industry, and enhance Scholars' CVs
- £600 financial award, to help with the cost of materials, equipment and activities to optimise their studies towards a career in Engineering (second year money is released after a satisfactory first year report)
- They may have the opportunity to develop links to their sponsoring organisation. This could include:
  - a day visit
  - work experience
  - personal mentor
  - support for the Scholar's curriculum project
- They have access to a wide range of enrichment events and opportunities through Arkwright including Connect Days, magazine subscriptions and technical lectures
- Selective access to mentoring through our partnerships, when a sponsor is not able to provide a mentor
- Access to exclusive Arkwright Undergraduate Engineering Scholarships.

The key benefits to schools are:

- The prestige of the Arkwright Engineering Scholarships provides schools with valuable marketing opportunities to prospective parents
- Access to a Regional Arkwright Liaison Officer to provide you with guidance on the application process and who will monitor the Arkwright Engineering Scholars' progress
- The positive impact that a Scholarship has on a student's development and confidence
- £400 financial award to the school, per Scholarship secured by that schools' students, to be used to enhance the teaching of STEM subjects related to Engineering (second year money is released after a satisfactory first year report, see Section 8, also see transferring a Scholarship between schools, Section 1)
- Enhancement of the reputation of the nominating STEM Department(s) within the school.



## 4. ENGINEERING SCHOLARSHIP APPLICATION PROCESS

The application process comprises three components: application form; aptitude exam; interview.

### 4.1 Students' Application Form

The application form is managed on-line in the following process:

- The application round is launched in September each year and runs until mid-January
- Teachers must nominate the student applicant on our web-based portal (portal passwords will be provided to teachers at new schools when the application round is launched)
- Applicants' portal passwords will be sent to applicants once the teacher has added the applicant's name to the portal
- Applicants complete the on-line form, saving and iterating it as they wish
- Teachers can view applicants' applications throughout the process, but cannot make changes
- Applicants should print the application to discuss with their supporting teacher, allowing applicants to make changes before submitting online to the teacher to endorse the application
- Applicants submit their application to their teacher to endorse. **At this point no further changes can be made to the application by the Applicant**
- Teachers add their supporting statement and predicted grades for each applicant and submit the fully completed on-line application to Arkwright.

The **students'** on-line application must be finalised by applicants one week before the closing date or earlier. The student part of the on-line process will be shut for the final week of the application period to allow teachers time to complete and submit their references for their applicants. Arkwright cannot enter discussion with parents/guardians regarding earlier deadlines set by teachers.

Completed applications must be received from teachers by the closing date in January each year (the exact closing date is communicated in the launch email at the start of each application round and on the Arkwright website <http://www.arkwright.org.uk/how-to-apply/how-to-apply> ). **Late applications will not be accepted under any circumstances.**

### Fees

There is a £40.00 fee for each application that is entered into the Arkwright selection process - this covers administration and Aptitude Exam costs. Invoices are sent to the school for payment. An application is deemed to have been "entered into the Arkwright selection process" if the teacher submits an application via our on-line system, with or without a teacher reference, fully or partly completed.

A student or teacher who wishes to withdraw an application must provide written notification (email will be accepted) by midnight on the January closing date.

Any applicant registered to sit the Aptitude Exam who does not sit the Aptitude Exam, where the school or applicant has not given prior notice of withdrawal by midnight on the January closing date, will be charged the full fee of £40.00.

All application fees must be paid by the school/parent/guardian by the April deadline stated in the launch email to schools each year. **Any applicant whose fee has not been paid by this date will not have their application for an Arkwright Engineering Scholarship considered any further.**

### Special Circumstances

Where a school is aware of a special circumstance related to a prospective student applicant's ability to pay the application fee (where schools require the applicant's family to pay the fee), the Arkwright Senior Operations Coordinator should be made aware in writing (an email is preferred). Arkwright will consider cases on an ad hoc basis and may waive the fee.

#### 4.2 Support for students applying for an Arkwright Engineering Scholarship

There are two documents to help students submitting their Arkwright application:

1. What we are looking for in the initial on-line application - <http://www.arkwright.org.uk/downloads/arkwright-documents/how-to-succeed-in-the-arkwright-application.pdf> (one A4 page, reading time = 3 minutes)
2. Project ideas for those students who may lack a high-quality, technically-challenging project: <http://www.arkwright.org.uk/how-to-apply/example-projects> (one webpage, reading time = 5 minutes)

These resources may help enhance the quality of students' applications.

#### 4.3 Arkwright Aptitude Exam

Applicants must sit the Exam on the afternoon of the first Wednesday in February. The Aptitude Exam papers are posted to the school's Examinations Officer on the Friday before it is due to be sat. The Exam must be sat in school, under strict national exam conditions and be administered by the school's Examinations Officer. For National Exam Conditions please refer to the Council for Qualification's document "Instructions for conducting examinations, 1 September 2015 to 31 August 2016" (see Paragraph 6.3, page 18 of the JCQ document downloadable from the top URL link on this webpage: <https://www.jcq.org.uk/exams-office/ice---instructions-for-conducting-examinations/instructions-for-conducting-examinations-2018-2019>).

The Exam encourages students to demonstrate their skills by producing innovative solutions to engineering design problems. The Exam is broad-based and requires applicants to use the full spectrum of their knowledge of engineering. It does not test students specifically on the GCSE / Scottish National 5 / IB specifications they are learning at school. The Exam is designed to be challenging - experience has shown that some applicants will not fully complete the questions within the time allowed but they can still achieve good marks through the quality of their answers. **It is strongly advised that teachers take the time to prepare their applicants for the Exam**, including practise at working under exam conditions and reference to exemplar material and past papers which are available at: <http://www.arkwright.org.uk/how-to-apply/aptitude-exam> .

The blank A3 exam paper should be downloaded from:

<http://www.arkwright.org.uk/downloads/arkwright-documents/aptitude-exam-a3-paper-2019.pdf>

**Only this paper should be used during the Exam.** Candidates should use a fresh sheet for each question undertaken. The Markers recommend no more than 2 sheets per question (4 sheets in total).

The format of the Aptitude Exam paper is as follows:

1. The paper is split into TWO sections - A and B
2. Applicants must answer ONE question from Section A and ONE question from Section B
3. Applicants are to spend the first TEN MINUTES on reading and are not to start the paper until after the ten minutes.
4. Applicants are expected to spend ONE HOUR on each section
5. **Section A** has open-ended questions. We are looking for **three** creative and innovative concepts to solve engineering problems. The concepts are not expected to be fully detailed solutions, but the key features and working principles of each concept should be identified
6. **Section B** questions require applicants to solve a very specific engineering problem in detail. Key specification points will be provided.
7. Applicants are **not** required to produce a specification in either Section A or Section B.

Schools should make sure their applicants are aware of the marking scheme explained in **Appendix A**

### **Special Circumstances**

Where a school is aware of special circumstances related to the student's ability to take the Exam, it should be made known to the Arkwright Senior Operations Coordinator in writing (an email is preferred) and an acknowledgement of the special circumstance will be sent by Arkwright to the school's Examinations' Officer. A copy of the acknowledgment should be attached by the Examinations' Officer to the applicant's Exam script when posting to the Arkwright Marker.

The Exam may **not** be sat prior to the advertised Exam date, nor may it be sat on the morning of the advertised Exam date. Special arrangements can be made for applicants who are attending a pre-arranged field trip or sitting a National Exam on the advertised Exam date. In such cases the Exam may be taken on the Thursday or Friday of the Exam week, but no later. Any change in the Exam date must have the permission of the Arkwright Programme Manager. Please email the Arkwright Senior Operations Coordinator with details and an acknowledgement will be sent confirming the new agreed date. **Applicants who cannot sit the Exam within the timescales set out in this paragraph cannot be considered for an Arkwright Engineering Scholarship.**

Under no circumstances can the Exam be sat outside of school.

### **Illness and Extreme Bad Weather**

If an applicant is off school due to illness on the day the Exam is sat or cannot get to the school because of extreme bad weather, please contact Arkwright's Schools Coordinator to arrange to sit the Exam later in the Exam week.

### **After the Examination**

Please collect the Aptitude Exam papers and store them in a secure place or destroy them. You do not need to return them to us.

Please advise teachers and candidates not to discuss the contents of the Exam on social media sites because some students, due to sickness / bad weather, may be sitting the Exam later in the week. At Arkwright's absolute discretion, candidates who discuss the Arkwright Aptitude Exam on social media after sitting it, in sufficient depth to confer unfair advantage on others, may be withdrawn from further consideration for a Scholarship.

**We strongly recommend that the school's Examinations' Officer takes a colour photocopy or scan of the applicants' Exam scripts prior to posting - a few have gone missing in the post in previous years.** A label addressed to Arkwright will be provided.

Each applicant's original Exam script must have its individual sheets stapled together at top left and have the confirmation email of any special conditions attached. The Exam scripts must be presented in the order of the applicants' names on the Attendance Register and the completed Attendance Register must be included with the Exam scripts. Attendance Register and Exam scripts should be **folded** into an A4 envelope and be posted immediately after the Exam, by Special Delivery, to Arkwright. Please do not use tubes.

It is the school's responsibility to ensure all sections of every Exam script are mailed to the Marker. Arkwright cannot be held responsible for a school's error in not mailing all sections of all Exam scripts. Arkwright does not have the resource to chase schools for missing Exam scripts, or parts of Exam scripts. We will only mark what we receive from schools.

Applicants will be shortlisted for interview by the Arkwright Selection Panel, and at Arkwright's absolute discretion, based on a standard marking process, applied regionally, that combines the results of applicants' Exam script with the quality of their application form. Arkwright will use the teacher's supporting statement on the application form to help make borderline decisions.

All applicants will be advised of the outcome of the grading of their Aptitude Exam and application form by email in late February. Teachers will be similarly informed.

#### 4.4 Interviews

Interviews are hosted at prestigious universities renowned for their Engineering courses and research. Interviews will take place each year during the university Easter holidays. The exact dates each year are communicated to applicants on the application form.

When students apply for an Arkwright Engineering Scholarship, they are asked to indicate a first, second and third choice of date/venue should they be called for interview. If an applicant leaves this section blank **it will be assumed** that he/she is not able to attend on any of the listed dates and Arkwright will use reasonable endeavours to make alternative arrangements; however, interviews will not be held at the applicant's school. An applicant reaching this stage cannot progress in the Arkwright selection without having an interview.

The interview venue that applicants select for their interview has no influence or connection to future interviews for university undergraduate places.

During the 2/3-of-a-day interview event applicants will participate in a teambuilding activity and/or visit the engineering / technology Faculty at the host university. The aim here is to provide an educational experience incorporating team work and communication skills. These elements of the day are not marked in any way and do not form part of the Arkwright assessment process.

#### Aim of the Interview

All students are treated equally at interview – there is no 'quota' system. The interview is used to assess the applicant's understanding of Engineering, their aspirations regarding further study and a career as a professional Engineer, their leadership potential and their suitability to be an Ambassador for Arkwright Engineering Scholarships.

The Arkwright interview is not a mere formality, it is critically assessed, and the performance of each candidate is scored.

#### Guidance for Interviewees

The Arkwright interview will be many applicants' first experience of a formal interview process and is an early opportunity for personal development. We would like it to be an experience that applicants will remember and find beneficial, by gaining interviewing skills and confidence.

Detailed guidance on what applicants should expect from the interview and how to prepare for it is given at <http://www.arkwright.org.uk/downloads/arkwright-documents/guidance-notes-for-interviewees.pdf>. This guidance and any additional guidance will be sent again to all those applicants who are called for interview. **We strongly advise applicants to practise and prepare for the interview.**

## 5. APPORTIONING SCHOLARSHIPS

Based on a standard marking system, applicants are marked on their performance at interview, and are then ranked by score. An analysis is undertaken annually in early May to maintain a national standard of Interviewers' marks - to spot anomalies and to ensure consistency across interview panels.

Applicants and their teachers are told by email in late June if they have been:

- recommended for an Arkwright Scholarship  
or
- unsuccessful in their application.

Whilst most Scholarships are funded, this is not always possible. Therefore, those applicants who have been recommended for an Arkwright Scholarship will receive either:

- A fully funded Scholarship from a sponsoring organisation  
or
- An unfunded Scholarship

All funded Arkwright Engineering Scholarships must be supported by a Sponsor at a cost of £2,200. This may be a company, trade association, charitable trust, university, the Armed Services, a school, a personal donor or other organisation which has an interest in promoting engineering careers and/or supporting education. Sponsors may attach conditions to their funding of Scholarships based on certain specified criteria, such as geographic location, over and above the criteria set out in **Section 2**. Where such conditions are specified, Arkwright reserves the right to select applicants of adequate quality from the interview process based on those criteria where it is reasonably deemed appropriate by Arkwright in its absolute discretion. Funded Scholarships cannot be offered to any applicant unless an appropriate Sponsor is available.

Teachers, parents/guardians and applicants are most welcome, from late June, to identify suitable organisations that could offer sponsorship for a new Scholarship. Arkwright welcomes 'warm' leads to organisations that may be able to support Arkwright Engineering Scholarships. You should provide to Arkwright's Fundraising Team full contact details of the organisation, point of contact's name, position, phone number and/or email address, and details of any previous contact. Our Fundraising Team will then pursue the contact if appropriate.

However, teachers, parents/guardians and applicants should not themselves attempt to secure sponsorship from an organisation because Arkwright may:

- already be in receipt of support from the organisation
- already be in discussions with the organisation
- be in the final stages of agreeing support for the Scholar with a different organisation.

Arkwright maintains a Benefactors' Fund made up of small donations from a variety of sources. All members of the public are encouraged to donate to this Fund. This Fund is used where necessary, and at Arkwright's absolute discretion, as 50% matched funding to help organisations, that could not otherwise afford to fund an entire Scholarship, to support a Scholar. Match-funded Scholarships are apportioned in the same way as for fully-funded Scholarships. It is not publically identified whether an Arkwright Scholarship is fully or match-funded, because this has no bearing on the quality of the Scholars' experiences.

Details of the Scholars' Sponsors are made known to Scholars in mid-September. Scholars should email their Sponsors in September to introduce themselves, thank the Sponsor for their support and prepare for the Awards Ceremony.

Arkwright ceases all fundraising for Scholarships on 13<sup>th</sup> September 2019. There is no opportunity beyond this date for any additional funded Scholarships to be apportioned for that year. Unfunded Scholars will receive the same enrichment opportunities as funded Scholars; however, they will not be invited to the award ceremony, be put in contact with a supporting organisation or receive a financial award.

## 6. AWARDS CEREMONIES

The Awards Ceremonies are large, prestigious events held each autumn in London and Edinburgh. Over 1600 guests in total attend the events, including several VIPs. Each Ceremony lasts half a day and incorporates keynote speeches, award of Scholarships and a photo call for all Scholars.

Scholars are invited to one of the Ceremonies and asked to nominate up to two guests to accompany them (Scholars usually invite their parents/guardians as their guests). **No more than two guests can be accommodated per Scholar.**

When space at a venue permits, a separate invitation is forwarded to the Head Teacher at the Scholar's school; if he/she is unable to attend another school representative may be nominated (this is usually the Arkwright Coordinator at the school). This invitation to the School cannot be transferred to a Scholar to increase the Scholar's guest numbers beyond 2.

Separately, a representative of each Scholar's sponsoring organisation is invited to attend.

**Scholars are expected to attend the Awards Ceremony** – it is a very important formal occasion. They receive their Arkwright certificate and welcome pack at the Ceremony. The welcome packs contain reference materials that help to inform Scholars about Engineering careers, and their Arkwright lapel badge. There is opportunity at the Awards Ceremonies for Scholars and guests to purchase Arkwright merchandise, such as ties and notebooks. These are always popular with new Scholars. We encourage schools to allow Scholars to wear the Arkwright tie or lapel badge as part of their school uniform.

If you are a Twitter user, please use #arkwrightawards when tweeting about the Awards Ceremonies.

## 7. DURING THE SCHOLARSHIP

### 7.1 Scholars' Contact with their Sponsor

The amount of contact between a Sponsor and their Scholar may vary considerably from Sponsor to Sponsor. Over the two years of the Scholarship, Scholars are requested to maintain regular contact with their sponsor at a frequency agreed with the Sponsor. As a bare minimum Scholars should update their Sponsor as follows (even if the Sponsors does not respond):

September of year 1	an introduction, to include the Scholar's GCSE/Scottish National 5 results, CV and a thank you to the Sponsor for their support
February of year 1	an update of progress and details of any other achievements since September
September of year 2	an update of the Scholar's progress over the first year and details of their AS / Highers results and plans for post sixth form study
February of year 2	an update of progress since September of the previous year.
August of year 2	a closing letter/email as the Scholar receives their A Level / Advanced Higher results, advising of their grades and plans for the future and thanking the Sponsor for their support

Throughout the two years, Scholars should reply promptly (usually within a week) to any correspondence from their Sponsor and if the Scholar receives any awards they should proactively let their Sponsor know.

Arkwright Engineering Scholarships provides a safe environment for Scholars to develop themselves and their knowledge of Engineering. Where we are made aware of Scholar / Sponsor meetings in advance, Arkwright will carry out an appropriate risk assessment of all activities and inform parents of the outcome.

Events organised between the Scholar and Sponsor which is done without Arkwright's knowledge are outside of our control. It is therefore the responsibility of the parent or guardian to ensure the safety of their child. If parents or guardians have concerns about any Arkwright related event, they are advised to contact Arkwright.

Throughout the two years of their Scholarship, Scholars should not refuse any offers of suitable work experience or a site visit from their Sponsor unless it is unavoidable, because Sponsors may have gone to considerable lengths to provide the Scholar with the opportunity.

Scholars must bear in mind that their level of contact with their Sponsor, and their attitude towards their Sponsor, may have an influence on any future opportunity that the Sponsor may provide to the Scholar (e.g. university sponsorship or gap year work). Scholars' relationship with their Sponsor will also directly affect the Sponsor's decision to support Arkwright Engineering Scholarships in the future. Scholars should always conduct themselves as Arkwright Ambassadors and fully demonstrate the dynamic, high-calibre students that they are.

### 7.2 Contact with other Arkwright Sponsors and Partners

All Scholars, whoever their Sponsor, can take advantage of Arkwright's broad and deep programme of enrichment activities which occurs separately to the Scholar-Sponsor relationship. These opportunities, which may be arranged by Arkwright or may be offered by third parties, are communicated to Scholars through the quarterly Opportunity E-newsletter and by direct emails. Examples include:

- Connect Days hosted by some Arkwright Sponsors and other Partners
- University VIP Receptions
- Discounted items and tickets
- Access to free lectures

### **7.3 Policy for Gender Transition during Scholarship**

Where it is made known to Arkwright that a Scholar is undergoing or has completed gender transition during their time as a Scholar, or later in life as a member of the Arkwright Alumni, then we will proceed as follows:

- We will consult with the individual as regularly and thoroughly as is reasonably practicable to ensure we follow their wishes in our handling of the gender transition e.g. where the individual is a current Scholar, we will work with the individual, their parents and teachers as necessary, to appropriately inform the Sponsoring organisation of the gender transition, if this is the Scholar's wishes.
- So far as is reasonably practicable we will treat the individual in all our dealings and communications with them and others by the name and gender they wish to be (there may be occasions where this is not practicable e.g. a visit to a Military Base may require Scholars to present their passports which, for a transgender Scholar, may show them in their former gender and with their former name).
- Where a person has legally changed their name to show their gender transition, we will ensure all our current and historical records refer to the Scholar by the gender and name they wish to be known by going forward, and do not refer to any gender transition.
- We will work with the hosts of any Arkwright events to ensure that the individual is treated as the person they wish to be by all host staff, within the limits of the host organisation's transgender policy. If we are made aware of an individual's gender transition prior to an Arkwright event we will obtain a copy of the host organisation's transgender policy to be shared with the individual and his/her parents and teachers as appropriate, so that any issues can be dealt with prior to the event. Where necessary, a Risk Assessment will be produced prior to the day to cover any areas of concern for both the individual and the host organisation.



## 8. MONITORING, PROGRESSION AND DEFERMENT

Monitoring of Scholars during their Scholarship backs up the stringent selection process to ensure the quality of the Engineering Scholarships. Monitoring is conducted through:

- School visit reports completed by Arkwright's Liaison Officers. Scholars will be visited at least once during their Scholarship by their Liaison Officer. The Liaison Officer can provide support and advice. Liaison Officers arrange visits with the Head Teacher and/or Head of the nominating STEM department
- A first-year report completed by each of the Scholar and their teacher. Reports will be submitted on-line by the Scholar and their teachers (login passwords will be provided). The two reports are reviewed by Arkwright. The first-year reports are **MANDATORY**. Where first-year school or Scholar reports are not submitted to Arkwright by the requested deadline, Arkwright will initiate the process to withdraw second year funding after consultation with the Sponsor
- Final year report, completed by the Scholar alone. Final year reports are **MANDATORY** and are vital to show the Sponsor the positive outcome of each Scholarship. Final year report forms will be sent to Scholars in August to coincide with the notification of A2 and Advanced Higher results. This report requires no input from the school
- **MANDATORY** Annual, online school finance report, where teachers report how the nominating STEM Department(s) spent their Arkwright 1<sup>st</sup> and 2<sup>nd</sup> year financial award(s) for the academic year. Where a Financial Report is not submitted Arkwright reserves the right, at its absolute discretion, to not release the school's second year funding
- On an *ad hoc* basis when a Scholar, their teacher or Sponsor contacts Arkwright HQ.

First and Second year reports are required to be completed and returned by a set deadline (usually in September each year, but the exact date will be communicated when end-of-year reports are sent to Scholars and schools).

The award of the second year of the Scholarship and release of second-year monies is subject to Arkwright being satisfied with the first-year Scholar and teacher reports. Satisfactory reports depend on, amongst other things, at Arkwright's absolute discretion: the Scholar and school maintaining eligible status (see Section 2); Scholars maintaining satisfactory contact with his/her Sponsor (see Section 6); the Sponsor and teacher giving their satisfactory feedback about the Scholar; the Scholar achieving exam grades commensurate with the high status of the Arkwright Scholarships; and the Scholar maintaining his/her high reputation as an Ambassador of the Arkwright Engineering Scholarships.

Where, at the end of the first year, a Scholar is no longer actively considering further study and/or a career in Engineering or is not continuing with maths at A2/Advanced Higher, or otherwise ceases to fulfil the Scholarship eligibility criteria then the Scholar's Sponsor will be consulted as to whether the Scholarship should continue into a second year or not.

After careful consideration of the Scholar's and school's first-year reports by Arkwright, consulting with the Sponsor where necessary, the outcome for each Scholar will be one of the following:

- Scholar authorised for progression to second year of his/her Scholarship; Scholar and school second-year financial awards paid by December that year
- Scholar authorised for progression to second year of his/her Scholarship and Scholar second-year financial awards paid by December that year; school financial award not paid or paid to a prior school e.g. if the Scholar has moved to a new school that declines to become affiliated to Arkwright Engineering Scholarships
- Scholar authorised for progression to second year; Scholar has access to usual Arkwright events and activities, but Scholar and school financial awards deferred until May for reassessment (this usually occurs where a teacher has expressed concerns about a Scholar's academic progress and/or Scholars have achieved very poor results in that summer's exams)

- Scholar's second-year financial award deferred for a year. The Scholar will still have access to Arkwright benefits for 12 months, but the second-year financial awards will not be made available until an end-of-academic-year assessment is made by Arkwright as to the Scholar's progress. This scenario usually occurs where a Scholar is retaking their entire first year of A levels/Highers due to poor exam results or prolonged ill health. In this case, if the Scholar submits an acceptable report at the end of their second (retaken) year they will continue to have access to Arkwright's enrichment programme during their final (third) year of A level/Advanced Higher Studies.
- Scholar not authorised to progress to the second year of the Scholarship; Scholarship ceases and no further payments made to Scholar or School (this occurs where the first-year report and/or other evidence clearly shows that the student is no longer suitable to be an Arkwright Engineering Scholar). In this case the student may continue to state on their CV that they were awarded an Arkwright Engineering Scholarship and completed the first year.

Where, at the end of the first year, a Scholar leaves A level, Scottish Higher/Advanced Higher or equivalent studies at school/college to take up an apprenticeship, university place or other training/employment, the Scholarship will cease.

Second year payments for successful first-year Scholars will be made to Scholars and schools by early December whenever possible.

### **Removal of Arkwright Scholar Status**

Where the behaviour and/or actions of a Scholar are such that they bring the Arkwright Engineering Scholarships and/or the Sponsor into disrepute, or where the behaviour/actions are clearly counter to those of a future leader in Engineering, Arkwright reserves the right, at its absolute discretion, to remove a Scholarship from a Scholar by way of a written letter. Such withdrawal will have immediate effect and the student loses the right to state that they were ever an Arkwright Engineering Scholar. Such action may be taken at any point during a Scholarship.

## **9. SCHOLARSHIP FINANCIAL AWARDS**

### **9.1 Expenditure of Financial Award**

Scholars should use their financial award to enhance their STEM studies or widen their knowledge and experience of Engineering. Further details can be found at <http://www.arkwright.org.uk/downloads/arkwright-documents/2017-how-to-benefit-from-your-arkwright-financial-award-formatted-to-booklet-v1.pdf>

The money cannot be used for recreational activities, the purchase of 'leisure' equipment such as a laptop and/or digital camera or be saved to support activities post A2 or Advanced Highers.

The Scholar should include a brief summary of the expenditure of their financial award when they complete their first-year report and their final-year report.

Schools should use their financial award to support the teaching of STEM within the school, in order to nurture future engineers.

The school's annual Financial Report should detail how the school spent all of its Arkwright financial awards that year (i.e. 1<sup>st</sup> and 2<sup>nd</sup> year Arkwright Awards).

### **9.2 Validity of Cheques**

Arkwright's standard payment method is by BACS transfer. However, in circumstances where cheques need to be issued the following will apply:

- Cheques that are received from Arkwright Engineering Scholarships are valid for six months from the date of issue. If a cheque is received but cannot be presented within six months, please contact Arkwright HQ immediately.
- Cheques which are not presented within six months of the date of issue will become invalid. If this occurs, Arkwright will contact the school and Scholar to advise them that the school or Scholar cheque has not been presented. Arkwright will charge a £20 administration fee to issue a revised cheque. This fee will be deducted from the value of the cheque. Where a school or Scholar does not contact Arkwright within a month of being made aware that a cheque has not been presented it will be assumed that the school or Scholar does not wish to claim the money. In such cases Arkwright Engineering Scholarships will contact the appropriate Sponsor to ask how it would like the unused funding to be managed. Once this process has been initiated Arkwright cannot make the unclaimed financial award available to the school or Scholar again if we are subsequently contacted by the school or Scholar.

## 10. PROMOTING ARKWRIGHT ENGINEERING SCHOLARSHIPS

It is hoped that each affiliated school will promote the Arkwright Engineering Scholarships in the school's prospectus. Suitable text and an Arkwright logo can be obtained from Arkwright's Senior Operations Coordinator. A copy of the Arkwright A4 Schools' brochure is also available in PDF format for inclusion on school websites at: <http://www.arkwright.org.uk/downloads/arkwright-documents/schoolsbrochure2016-17.pdf>. There are two types of certificate presented by Arkwright to recognise affiliated schools' achievements. Affiliated schools are asked to display these in a prominent position on school premises:

- **School Affiliation Certificate** is issued when the school submits its first applicant
- **Department Certificate**, listing each year's awarded Scholarships, which will be forwarded with the first-year financial award.

Arkwright Engineering Scholarships are a prestigious accolade for outstanding students. Arkwright Engineering Scholarships hopes that teachers and Scholars in affiliated schools will be proud of their achievements. For this reason, we invite Head Teachers to allow their Scholars to wear a visible sign of their Scholarship, i.e. the Arkwright lapel badge and/or tie, as part of their school uniform.

A standard press release is forwarded to schools at the time of the autumn Awards Ceremonies. Schools are encouraged to seek coverage of their Scholars in local newspapers. It can be productive for schools to write to their local MP suggesting a school visit to congratulate the Scholars.

Schools are asked to forward copies of any press coverage to the Arkwright Senior Operations Coordinator.

If you are a Twitter user, please use @arkwrighttalent when tweeting about Arkwright.

## 11. MAP AND LIST OF AFFILIATED SCHOOLS

All of Arkwright's affiliated schools can be viewed on a map at <http://www.arkwright.org.uk/schools-teachers/our-affiliated-schools-map>.

Appendix A:  
Marking Guidelines for the Arkwright Aptitude Exam

A1: Examination Guidelines



# APTITUDE EXAM



FOR SCHOLARSHIPS TO BE  
AWARDED IN SEPTEMBER 2019

**WEDNESDAY 6<sup>th</sup> FEBRUARY 2019 - AFTERNOON**  
**DURATION - 2 HOURS, 10 MINUTES**  
**(to include 10 minutes reading time)**

### INSTRUCTIONS TO CANDIDATES

You are required to answer **ONE** question from Section A  
and **ONE** question from Section B.

In **Section A** you are asked to provide **THREE** initial solutions to a problem.  
You will be marked on the following:

	Mark
a) <b>Quality</b> of your <b>THREE</b> solutions – how well you solve the problem along with the flair and imagination of your ideas.	30
b) <b>Technical knowledge &amp; Reasoning</b> of your solution – how well they may work, with operating principals explained and justified. – how much technical / engineering knowledge you demonstrate in your ideas and annotations.	15
<b>SECTION A TOTAL</b>	<b>45</b>

In **Section B** you are asked to solve a more focused problem, providing only **ONE** detailed solution.  
You will be marked on the following:

	Mark
a) The <b>functionality</b> of your given solution	30
b) The consideration given to the choice of <b>materials</b> and <b>components</b> The consideration given to the method of <b>construction</b>	15
<b>SECTION B TOTAL</b>	<b>45</b>

<b>Communication</b> including diagrams & designs, annotations and readability	<b>10</b>
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<b>GRAND TOTAL</b>	<b>100</b>
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**Please fill in the information box at the bottom of each answer sheet with:**

- ◆ Your candidate name and school name clearly printed on each sheet.
- ◆ The number of the question you have chosen to answer.
- ◆ The page number.

**Please start each question on a fresh sheet of paper**

**Applicants must not discuss the exam on social media or in any other way**

**DO NOT TURN THE PAGE UNTIL YOU ARE  
INSTRUCTED TO DO SO**

## A2: Detailed Marking Breakdown of Arkwright Aptitude Exam

### Section A

<b>QUALITY OF CONCEPTS (Including Flair and Imagination)</b>	<b>TECHNICAL KNOWLEDGE &amp; REASONING</b>
<b>30 MARKS</b>	<b>15 MARKS</b>
Excellent, function and creativity <b>(24 - 30)</b>	Displays an excellent level of technical knowledge All operating principals are explained and justified. <b>(12-15)</b>
Good function and creativity Some repetition evident <b>(17 - 23)</b>	Displays a good level of technical knowledge The majority of operating principals are explained and justified. <b>(8-11)</b>
Some function and creativity Design ideas overlap <b>(9 - 16)</b>	Displays a sound level of technical knowledge Operating principals often left unexplained. Reasoning lacks insight. <b>(5-7)</b>
Disappointing range/variety of ideas presented <b>(0 - 8)</b>	Displays poor technical/engineering knowledge Limited depth of insight into operating principals <b>(0-4)</b>

### Section B

<b>FUNCTIONALITY OF PROPOSAL</b>	<b>MATERIALS &amp; COMPONENTS &amp; CONSTRUCTION METHOD</b>
<b>30 MARKS</b>	<b>15 MARKS</b>
Fully functional in the majority of aspects <b>(21-30)</b>	All materials and components specified with regard to suitability for purpose Full details of construction <b>(10-15)</b>
Functional in some key aspects <b>(11-20)</b>	Some materials and components identified with minimum qualities described Some ideas of construction identified <b>(5-9)</b>
Low level functionality <b>(0-10)</b>	Vague reference to materials and components that could be used Limited mention of construction <b>(0 - 4)</b>

### Communication – Including diagrams & designs, annotations and readability

<b>10 MARKS</b>
<b>Excellent levels of communication (7-10)</b>
<b>Satisfactory levels of communication (3-6)</b>
<b>Poor levels of communication (0-2)</b>

## 1. USEFUL CONTACT INFORMATION

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