# ALPHA ENGINEERS CONTEST
# IEEE REGION 8

## Contest Participation Guide

PEA
IEEE REGION8
PROFESIONAL AND
EDUCATIONAL ACTIVITIES

PRE-UNIVERSITY . UNIVERSITY . CONTINUING ED.

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# 1. Introduction

The Alpha Engineers Competition is a new IEEE R8 programme that aims at organising events for promoting engineering to the community via various means. The goals of the programme are to:

- Empower section volunteers to collaborate with their local pre-university community;
- Promote STEM, in particular engineering;
- Enhance the level of technical literacy of pre-university educators and pupils;
- Encourage pre-university students to pursue technical careers, including engineering;
- Increate the general level of technical literacy of pre-university students throughout their education;
- Change the views on engineering and accentuate the importance of engineering in the world.

The sessions/events can be delivered by IEEE volunteers or invited speakers (IEEE members or non-IEEE members). A set of activities are eligible for the Alpha Engineers competition. These are being further describe later on in this handbook.

# 2. Eligible activities

## 2.1 Teacher In-Service Program (TISP) workshops

The Teacher In-Service Program (TISP) is a professional development workshop aimed at pre-university educators to bring exciting hands-on engineering lessons to their classroom. The workshop comprises of lesson plans which demonstrate the application of engineering, science, and mathematics concepts using cheap and easily available materials.

The workshop is delivered by IEEE volunteers known as 'TISP Champions.'

Since 2001, over 130 in-service presentations have been developed and presented by IEEE volunteers. Approximately 3,200 pre-university educators have participated in an in-service programme, impacting almost 350,000 pupils worldwide.

### 2.1.1 Participants

For a TISP workshop, the accepted participants will be pre-university educators, but other things need to be considered, such as:

- The targeted educators are primary school teachers, secondary school teachers, high school teachers, or a combination of different year levels? This will help you select appropriate lesson plans.
- Are the local school district officials going to be invited?
- What is the maximum number of participants allowed in the workshop?
- Are there any local government or non-government initiatives? Support from existing initiatives can increase the outreach of the programme and may lead to a larger audience encompassing teachers, education inspectors, initiative officials, etc.

## 2.2 TISP 2.0

TISP 2.0 is a TISP workshop which is delivered by IEEE Young Professionals or Student Volunteers directly to school students.

This programme provides our members a chance to interact directly with the school students and show them how engineering/science concepts are practically applied. It also gives us a chance to promote EPICS-in-IEEE to schools and increase the number of potential pupils participating in EPICS-in-IEEE projects.

Please note that some countries have laws which require permissions or background check from relevant bodies before entering the school premises. TISP 2.0 organisers are encouraged to research the policies and discuss them with the student branch councillor and the local school head to find the most effective way forward. It is advised that a teacher is present in the classroom at all times. Sections can also organise training events for their volunteers which involve working with children (see section 2.3).

### 2.2.1 Participants

For a TISP 2.0 workshop, the accepted participants will be pre-university students. Some things to consider are:

- The targeted audience are primary school students, secondary school student, or high school students? This will help you select appropriate lesson plans.
- What is the maximum number of participants allowed in the workshop?
- Are there any local government or non-government initiatives? Support from existing initiatives can increase the outreach of the programme and may lead to a larger audience.

## 2.3 Working with children training events for volunteers

In the case of organising an event which requires working with children (such as a TISP 2.0 event), sections are encouraged to precede such events with a working with children training workshops. Such workshop aims at training the volunteers on what is the appropriate way of interacting with children, what to do in certain situations, all by complying with the IEEE regulations for working with children.

The workshop can be delivered by either an already trained IEEE volunteer or by an approved body of the country the session takes place in. These type of events can be done either as live face-to-face lecture or as a webinar. Please note that these workshops will only be a guidance for working with children and complies with the IEEE regulations. Sections are advised to seek additional support and make sure the volunteers receive the local training and certification, if required by the local legislations.

For more information please visit : https://www.ieee.org/about/volunteers/risk-insurance/ieee-activities-with-children.html

### 2.3.1 Participants

For a working with children training event, the accepted audience will be IEEE volunteers. These can be at any level (student, graduate, senior member, etc.). You will need to consider what is the maximum number of participants allowed in the training workshop, as well as the method of delivering the workshop.

## 2.4 Engineering talks for parents

Sections are encouraged to organise engineering talks for parents. Like teachers, parents have a great influence on the choice the children make. These talks aim at promoting engineering as a whole or a particular branch of engineering to help change the perceptions of a stereotypical engineer.

These talks can be delivered by al IEEE volunteer or by a non-IEEE member as an invited speaker. The events can take place in a university, school, or any public space.

### 2.4.1 Participants

The engineering talks are aimed at parents interested in finding out more about engineering as a whole or a particular branch of engineering. Children participating to the talk will not count towards the judging (see section x for judging criteria). You will need to consider what is the maximum number of participants allowed at the engineering talk.

## 2.5 Career talks for upper level pupils

Career talks for senior students are highly encouraged. The aim of these career talks is to promote different branches of engineering to pupils planning to apply to university of apprenticeship, and to help them explore the different types of career they can choose.

A career talk can be delivered by IEEE volunteer. Please note that these events might still require you to undergo the working with children training workshop (section 2.3). The event can take place in a university, school, or any public space.

### 2.5.1 Participants

The career talks are aimed at high school, sixth form, or college students. These are the students preparing to take the next step and deciding to go into university or apprenticeship. Depending on the educational structure in the country where the career talk is organised, these can be extended to younger pupils if the organisers see it fitted. You will need to consider what is the maximum number of participants allowed at the career talk.

## 2.6 Online talks for schools

Sections or branches can organise online talks for school. The aim of these talks is to promote engineering or branches of engineering when physical contact with students is not possible. These online talks can allow volunteers to reach more schools in one presentation. The aim is to promote engineering and inspire children by talking about a volunteer's work.

The online talks can be delivered by IEEE volunteers and does not necessarily require to be organised by the section, but they are required to report it to the section to be considered for the Alpha Engineers. This is an online event and will be done using an online platform: webex, skype, zoom, etc.

### 2.6.1 Participants

The online talks are aimed at pupils and their teachers (it is required that the teachers are present in the online talk). The presentation will be displayed on a screen in the classroom during school times. You will need to consider what is the maximum number of participants, groups, or schools that can attend the online talk.

## 2.7 Science Fairs Participation

Sections can choose to participate or organise science fairs in their country. There are various ways a section can get involved in a science fair:

- Organiser (sections can organise children science fairs aimed at promoting engineering to the community);
- Presenter at an existing/established science fair (sections can send volunteers to deliver talks aimed at promoting engineering);
- Workshops at existing/established science fair (sections can organise workshops – i.e. shorter TIPS junior workshops – aimed at encouraging children to get involved into engineering);
- Exhibitor at an existing/established science fair (sections can choose to book a stand at fair aimed to promote engineering to children)

IEEE volunteers have to attend the fair if the section is promoting engineering and IEEE at an existing/established fair. If the section is the main organiser of the fair, the presenters and/or exhibitors can be IEEE members or non-IEEE members.

### 2.7.1 Participants

The fairs should be aimed at pupils, teachers, parents, schools, etc. The aim is to promote engineering at a larger scale. You will need to consider:

- What is the maximum number of participants at a fair if the section is the main organiser?
- What is the maximum number of participants at a lecture or workshop?

# 3. Local Organising Team

Local section volunteers can be recruited to take part and assist with the event. Some recruitment methods are:

- Section and student branch newsletters;
- Announcements at section and student branch meetings;
- Inviting Young Professional, life, and/or Executive Committee members to participate;
- Report at Executive Committee meeting;
- Informal contact with members;
- Taking/showing photos from previous TISP events.

The Section Educational Activities Coordinator can play a vital role in helping you get the right volunteers for your TISP event.

# 4. Sponsorship

There are several entities you can approach for funds when organising an event:

- Local sections;
- Universities (some universities have programmes which are similar to the ones you are organising);

- Industry;
- Local government and non-government entities.

IEEE has provided a number of templates for letterheads, business cards, and presentations. Use these to increase their confidence in you and your team. The use of an IEEE alias as your email address may also be beneficial. You can find the templates here: http://www.ieee.org/about/toolkit/tools/index.html

# 5. Marketing and Inviting Participants

To invite participants, depending on the country and type of school (public or private), you will have to go through the local school district or a school official. To initiate contact, you may try the following ways:

- Use member contacts within your local school district;
- At the district level, initial contact may include science, maths, or technology supervisor, curriculum developer supervisor, or professional development supervisor;
- At the school level, initial contact may include school principal, assistant principal, science/maths/technology department head, lead teacher, or curriculum developer in STEM.

# 6. Judging Criteria

There will be set rules for judging an application from a section. These rules can be found below.

## 6.1 Participating in the TISP Week

The section is required to submit scanned copies of the teachers' feedback forms as well as the lesson plan(s) used. Sections are required to train a minimum of 20 teachers during ONE workshop.

A section can organise more than one workshops during the TISP week. Each TISP workshop organised during the TISP week will receive 20 points.

## 6.2 Organising TISP workshops outside TISP Week

The section is required to submit scanned copied of the teachers' feedback forms as well as the lesson plan(s) used as proof that the workshop took place. Sections are required to train a minimum of 20 teachers during ONE workshop.

There is no limit on how many TISP workshops a section can organise. If a section has TISP workshops running during the TISP week, these will only be considered once. The TISP workshops organised outside the TISP week will receive 15 points.

## 6.3 TISP 2.0

The section must submit the number of children that took part in the workshop, the age group of the children, the lesson plan(s) used, and 1-2- testimonies from children as proof of the workshop taking place. If English is not the language in which the workshop was conducted, a translation should be attached along with the testimonies. Section must have a minimum of 20 pupils per workshop.

There is no limit on how many TISP 2.0 workshops a section can organise. TISP 2.0 workshops can take place at any time during the year, including the TISP week. All sessions will be judged equally. TISP 2.0 workshops will receive 10 points.

## 6.4 Engineering Talks for Parents

The section must submit the number of parents present during the talk, the topic/title of the talk, and 1-2 sentences testimonies from the parents. If English is not the language in which the talk was delivered, the English translation must be submitted along with the original testimonies. A minimum of 10 parents per talks is required.

There is no limit on how many engineering talks for parent a sections can organise. These talks will receive a total of 5 points.

### 6.5 Training Workshops for Working with Children

The section must submit the overview of the training, the location (whether the training took place online or in person), and the number of volunteers trained. A minimum of 10 volunteers must be train in order for the event to be recorded for the AlphaEngineers.

There is no limit on how many workshops a section can organise. These training workshops will receive a total of 2 points.

### 6.6 Career Talks

The section must submit the number of pupils attending the talk, the age group of the pupils, the title/topic of the talk, 1-2 sentence testimonies from pupils. If English is not the language in which the talk was given, translation must be attached along with the testimonies.

There is no limit on how many workshops a section can organise. These training workshops will receive a total of 2 points.

### 6.7 Online Talks

Sections must submit the number of students that attended the presentation, the age group, the topic/title of the presentation, and at least one testimony from one of the teachers present during the presentation. If English is not the language in which the testimony was written, translation must be attached with the testimony. A minimum of 15 pupils and one teacher per talk is required.

There is no limit on how many online talks a section can organise. These online talks are worth 1 point.

### 6.8 Science Fairs

There are different ways in which a section can get involved in a science fair, and each modality requires different proof of the event.

- Organising science fairs
    - Sections must submit the rough number of attendees, schedule (containing exhibitors, workshops, presentations, etc.), a selection of 1-2 sentence testimonies. If English is not the language in which the testimony was written, translation must be attached.
- Presenting at an existing/established science fair
    - Sections must submit details of the science fair (name, location, organisers, dates, URL), as well as the title/topic of the presentation, number of pupils present for the presentation. Where possible, sections can submit testimonies (English translation required)
- Delivering workshops at an existing/established science fair
    - Sections must submit details of the science fair (name, location, organisers, dates, URL), as well as the title of the workshop, number of pupils present at the workshop. Where possible, sections can submit testimonies (English translation required)
- Exhibitor at an existing/established science fair
    - Sections must submit details of the science fair (name, location, organisers, dates, URL), as well as an estimated numbers of pupils the section's stand interacted with.

Sections are encouraged to get a total of five short testimonies from pupils visiting their stand (English translation required)