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IEEE Region 8  
Pre-University Works  
(PUW)

Teacher In-Service Program  
(TISP)

## Workshop Organization Guide

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## 1. Introduction

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 goals of this program are to

- empower section volunteers to collaborate with their local pre-university community;
- promote applied inquiry-based learning;
- enhance the level of technical literacy of pre-university educators;
- encourage pre-university students to pursue technical careers, including engineering;
- increase the general level of technical literacy of pre-university students throughout their educational careers.

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 trained 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 program, impacting almost 350,000 students worldwide.

## 2. TISP training workshops

TISP training workshops are organized by IEEE to train local volunteers to conduct TISP workshops with local pre-university educators.

During this workshop, IEEE volunteers:

- learn tips and strategies on how to connect with their local educators;
- participate in hands-on activities;
- hear from key local educators;
- receive resources to help them conduct teacher in-service presentations.

The duration of these workshops depend on the time constraints of the local organizers but the recommended duration is 1.5 days. A shorter, stripped down version of this workshop may also be organized if the training workshop is part of another event but we strongly recommend the longer duration version to ensure complete training of the volunteers. For the shorter version, we recommend a minimum duration of 3 hours focusing on the lesson plans.

By being part of a training workshop and organizing local TISP workshops, IEEE volunteers become champions of technological literacy and help promote the field of engineering/science to the coming generations. These volunteers help in

- increasing the level of technological literacy in local school districts;
- contributing to the establishment of pre-engineering programs;
- facilitating enhancements in school science and technology curricula;
- developing collaborative relationships with educators;
- exposing more female and minority students to technology-related professions.

## 3. Organizing a TISP Workshop

The workshop, like any other event, requires planning and organization to make it a success. The fact that local IEEE volunteers organize this workshop makes it easier to involve the local section and other entities for their support and guidance. Besides the local section, Pre-University volunteers at the Region level and IEEE staff may also be approached for guidance. Relevant contact details can be found in the ‘contacts’ section of this booklet.

### 3.1. Planning

Planning of any events requires careful consideration about the operational, logistical, financial and marketing aspects to ensure success. We have listed the considerations out in detail in the sub-sections below.

#### 3.1.1. Participants

Participants are the key aspect of any events and thus, the first order of business should be to identify the target audience. This helps to streamline the efforts and give an indication on which parties need to be involved to get the right audience. In this case, our participants will be pre-university educators but we still need to consider a few more things

- The targeted educators are primary school teachers, high school teachers, or both? This helps in selecting age appropriate lesson plans.
- Are local school district officials going to be invited?
- What is the maximum number of participants allowed for the workshop?
- Are there any similar local Government or Non-Government initiatives? Support from existing initiatives can increase the outreach of the program and may lead to a larger audience encompassing teachers, education inspectors, initiative officials, etc.

Answers to these questions give a clear picture of number and types of participants which are going to invited to the event and lead us to consider appropriate logistics.

#### 3.1.2. Local Organizing team

A successful event is never a one man show and requires a team effort. Local section volunteers can be recruited in to the team through

- section and student branch newsletters;
- announcements at section and student branch meetings;
- inviting GOLD, Life and/or Executive Committee members to participate;
- report at Executive Committee meeting;
- informal contact with members;
- taking/ showing photos from previous in-services.

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

Once the team is recruited, divide tasks among them. The most important thing to remember over here is to never micro-manage. Give them the freedom to complete their tasks independently but do give them guidance and keep an eye to ensure quality. Your team members are volunteers like you and are taking time out of their schedule to help you with the event therefore, remember to appreciate their work, divide the tasks equally and never overburden anyone.

### 3.1.3. Workshop Programme

While the team is being formed, the workshop timeline should be written down. This timeline includes the dates when you start contacting sponsors, send out invitations to local school districts, finalize the venue, and the date of your event.

The workshop should be held over the weekend to allow maximum participation from working professionals. Typically, a 1.5 day workshop starting on Saturday morning (or the first day of the weekend in your country) and should end in the afternoon of the next day. A sample workshop programme can be found in Appendix A. The programme should consist of an introduction of TISP, hands-on activities and talks from key local educators and IEEE members.

At this stage, you also have to tentatively layout the logistical map of the event which includes

- Venue
- Catering
- Transport (if required)
- Accommodation (if required)
- Workshop requirements (stationary, projector, laptops, etc.)
- Lesson requirements (based on the lesson plan)

Selecting lesson plans is also an important aspect. You may either select the lesson from <http://www.tryengineering.org>, <http://www.trycomputing.org> or create your own. TryEngineering.org lessons are available in 9 languages which include English, Russian, Chinese, Arabic, Spanish, French, German, Japanese, and Portuguese. If you are creating your own then the lesson should be

- tied to education standards;
- of interest to section members;
- “hands-on” in nature;
- low cost;
- Identified by school staff as needed.

### 3.1.4. Sponsorship

Raising funds is sometimes the hardest part of the event and therefore needs an organized approach. There are several entities to approach for funds when organizing a TISP workshop

- Local Section
- Universities (some universities have programs which are similar to TISP)
- Industry
- Local Government or Non-Government entities

Be professional while approaching these 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 may find these templates here: <http://www.ieee.org/about/toolkit/tools/index.html>

### 3.1.5. Marketing and Inviting Participants

To invite teachers, depending on the country and the type of school (public or private); you 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 contacts may include science/math/or technology supervisor, curriculum development supervisor, or professional development supervisor.

- At the school level, initial contacts may include school principal, assistant principal, science/math/technology department head, lead teacher or curriculum developer in science/math/technology.

A sample invitation letter has been provided in the appendix for your convenience.

To advertise the event, we suggest you use templates provided by IEEE to make brochures. You may also use IEEE's hosting service and a web template provided by IEEE to make a website for the workshop. The templates can be found at: <http://www.ieee.org/about/toolkit/tools/index.html>.

### 3.1.6. Tips for a successful event

- Reward or appreciate the work of your volunteers.
- Don't rush things. Start planning a few months before the event.
- Take advice from local section volunteers or region volunteers who have organized or attended an In-Service before.
- Divide tasks equally and follow-up to ensure quality control.
- Use IEEE's templates for website, brochures, business cards and letterheads to reduce workload while increasing consistency and the level of professionalism.

## 3.2. During the workshop

### 3.2.1. Registration

On the day of the event, make sure that participant badges and relevant registration information is available at the registration desk to avoid delays. Keep extra stationary, empty participant badges and information booklets on the desk.

The information booklet should contain relevant maps, event information, programme, emergency phone numbers, and Wi-Fi login credentials (if available).

### 3.2.2. Hands-on activities

Hands-on lesson plans can be selected from [www.tryengineering.org](http://www.tryengineering.org) or designed by yourself based on the information given earlier.

If the lessons are selected from TryEngineering then download and printout the complete information sheets including the questions related to the lesson. Make sure that there are



plenty of materials present to complete the lesson. Keep some extra just in case. You may also download the presentation accompanying the lesson plan to help out with introduction of the lesson.

### **3.2.3. Evaluation forms**

Evaluation form is provided by IEEE to evaluate the impact of the workshop. Download and print the form for all participants to fill at the end of the event. The data collected from this survey will help you ascertain how to organize a better program next time.

The evaluation form can also be found in the appendix of this report.

## **3.3. After the workshop**

### **3.3.1. Settle accounts**

It's important to settle the pending accounts at the end of the event. Make sure that all creditors are paid and submit copies of the receipts to the sponsors including the Section. You may use IEEE's event expense sheet to help out with the final balance sheet.

### **3.3.2. Thank your team**

Don't forget to appreciate the work of your team. They were along with you all the way and simply calling them to the stage and thanking them in front of the participants goes a long way. It boosts their confidence and helps you possibly retain the same team for future events.

If budget allows, certificates may also be given to them.

### **3.3.3. Close-out documentation**

It is important to write reports along with some pictures, if required under contract, for sponsors on how they were publicized during the event. You should also write an event summary with loads of pictures and send to the following sources

- R8 News for publication in the following newsletter. Their email address is [r8news@ieee.org](mailto:r8news@ieee.org)
- R8 Pre-University Works committee for publication on the online Pre-University portal. Our email address is [r8puw@ieee.org](mailto:r8puw@ieee.org)

- Local Section for publication in the section newsletter.

## 4. TISP 2.0

TISP 2.0 is a Region 8 initiative that has been gaining traction in the region. TISP 2.0 basically a TISP workshop which is given by IEEE GOLD or Student Volunteers directly to school students.

This program provides our student and graduate student 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 increases the pool of potential high school students participating in EPICS-in-IEEE projects.

The program originated in Portugal and after two years of successful workshops it is being advertised by R8 PUW to other sections within the Region.

Organization of a TISP 2.0 workshop involves contacting local schools directly through either your university, student branch councillor or a TISP 2.0 coordinator within the branch. The total cost of the event varies depending on the location but past workshops have been organized with funds ranging from USD 50 to USD 200 including local travels of the TISP presenters and lesson material costs. The venue is usually the schools own classroom or auditorium thereby making it easy for school students to participate.

Some countries have laws which require permissions from a number of relevant bodies to enter school premises. We suggest that TISP 2.0 organizers research the policies and discuss them with their student branch councillor and the local school head to find the most effective way forward. During the workshop, a good practice is to always have school teacher(s) present in the room.

Some test cases have been given below.

### 4.1. Portugal

TISP 2.0 workshops are supported and funded by the Portugal Section. Since 2011, they have conducted 12 workshops in 7 schools in Lisbon, Sintra, Cascais, Aveiro, Carcavelos and Oeiras. 2563 students have been a part of these workshops till now with more workshops planned. The feedback is quite positive from the schools and all of them requested to have these workshops on an annual basis.

## 4.2. Greece

In March 2013, The UCG student branch conducted a workshop at a high school in Lamia, Greece. The workshop was met with enthusiasm by the school officials and students alike. A total of 42 students were present at the workshop where they made a chair lift with everyday use materials.

The workshop was held with support and funding from the UCG Student Branch.

## 4.3. United Kingdom

A TISP 2.0 workshop was organized in Jun 2012 in Slough, UK with participation of 6 schools. The participants included 50 students and 6 teachers. The workshop received positive response with a request to host it annually. At least 3 teachers who were part of the workshop have taken the lesson to their classroom and have made it part of their lesson plan.

The workshop was supported by UK&RI section and funded by the PUW committee.

## 5. Contacts

The IEEE R8 Pre-University Works Committee can be reached at our email address:

[r8puw@ieee.org](mailto:r8puw@ieee.org)

or

through our Facebook page: <https://www.facebook.com/ieeeR8PreUniversity>.

To contact IEEE EAB staff members, please email Yvonne Pelham at [y.pelham@ieee.org](mailto:y.pelham@ieee.org).

## 6. Final Word

TISP is an excellent program to inspire the next generation of engineers and scientists by getting more school students interested in the technical fields. The practical way of showing simple science concepts - which may be dry or boring to some students - stimulates the brain of the students and shows them the practical applications of these concepts.

We highly recommend sections and other IEEE entities to organize TISP workshops.

## 7. References

1. IEEE Teacher In-Service Program details [Online]. Available: [http://www.ieee.org/education\\_careers/education/preuniversity/tispt/index.html](http://www.ieee.org/education_careers/education/preuniversity/tispt/index.html)

## Appendix A – Sample workshop programme

### Sample agenda of a one and a half day program

#### Day 1

Date	
08:00-09:00	Registration
09:00-09:15	Opening by ..... (IEEE introduction and agenda)
09:15 – 12:00	Plenary Sessions by IEEE members and Local Education officials
12:00 – 01:00	Lunch
01:00 -02:30	Lesson Plan 1
02:30 – 03:00	Coffee Break
03:00 – 04:30	Lesson Plan 2
04:30 – 05:00	End of Day 1 remarks and housekeeping

#### Day 2

Date	
09:00-09:15	Opening (The day's agenda and any other information)
09:15 – 11:30	Breakout or Plenary sessions
11:30 – 12:00	Closing remarks
12:00 – 01:00	Lunch

## Appendix B – Sample Invitation letter

Dear

### Letter of Invitation: Teacher In-Service Program

With pleasure, I would like to extend an invitation to ..... to participate in the IEEE Teacher In-Service Program Training Workshop which will be held in ....., ....., from .....to ..... This workshop is a significant first step for ..... (region) ..... to establish a program where members of IEEE can assist local pre-university school systems in the professional development of educators and to raise the level of technological literacy of pre-university educators and students. IEEE is the world’s largest professional association dedicated to advancing technological innovation and excellence for the benefit of humanity. IEEE and its members inspire a global community through its highly cited publications, conferences, technology standards, and professional and educational activities. One of the goals of the IEEE Envisioned Future is to improve the professional competencies of students and professionals through education. As an example, the Teacher In-Service Program, designed to enhance the teaching of science and math in the classroom, has reached several thousand pre-university educators worldwide. For more information about TISP, visit [www.ieee.org/teacherinservice](http://www.ieee.org/teacherinservice)

The training workshop will provide a forum for delegates from ..... to learn more about the program and empower them to organize efforts in their local communities. Participants will hear presentations on the status of science, technology and mathematics education in the region; learn about the challenges facing educators and opportunities for IEEE to assist; engage in interactive inquiry-based hands-on activities; learn about the importance of aligning activities to curriculum frameworks; and dialogue with panellists on establishing and sustaining partnerships with local pre-university schools and school systems.

The event held at ..... Hotel .....will begin on ..... at ....., with ..... hours of presentations followed by a dinner at ..... On ....., the event will run from ..... to approximately ..... with breakfast and lunch provided.

We would be pleased to have one representative from your office to take part in the program and present a speech on one of the topics or participate as a panellist.

I look forward to your positive response and support for the IEEE Teacher In-Service Program.

Kind Regards,



## Appendix C – Useful website links

### IEEE Education Activities Board (EAB) links

Pre-university Education	<a href="http://www.ieee.org/education_careers/education/preuniversity/index.html">http://www.ieee.org/education_careers/education/preuniversity/index.html</a>
Teacher In-Service Programs	<a href="http://www.ieee.org/education_careers/education/preuniversity/tispt/index.html">http://www.ieee.org/education_careers/education/preuniversity/tispt/index.html</a>
EPICS-in-IEEE	<a href="http://www.ieee.org/education_careers/education/preuniversity/epics_high.html">http://www.ieee.org/education_careers/education/preuniversity/epics_high.html</a>

### IEEE R8 Pre-University Works (PUW) links

PUW Portal	<a href="http://www.ieeer8.org/category/technical-activities/educational-activities/pre-university-works/">http://www.ieeer8.org/category/technical-activities/educational-activities/pre-university-works/</a>
PUW Facebook page	<a href="https://www.facebook.com/ieeer8PreUniversity?ref=stream">https://www.facebook.com/ieeer8PreUniversity?ref=stream</a>
PUW Twitter	<a href="https://twitter.com/IEEE_R8_PUW">https://twitter.com/IEEE_R8_PUW</a>

### EAB Engineering, Technology and Computing Portals

TryEngineering	<a href="http://www.tryengineering.org/">http://www.tryengineering.org/</a>
TryComputing	<a href="http://www.trycomputing.org/">http://www.trycomputing.org/</a>
TryNano	<a href="http://www.trynano.org">http://www.trynano.org</a>



Other Relevant links

IEEE Brand Identity Toolkit	<a href="http://www.ieee.org/about/toolkit/index.html">http://www.ieee.org/about/toolkit/index.html</a>
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