



3RD International Conference on Science and Technology Education (ICSTE2014)

FCT Education Resource Center, Wuse, Abuja FCT-Nigeria

1-4 September, 2014

Preamble

We are pleased to invite you to the International Conference on Science and Technology Education (ICSTE2014) is organized by African Association for Teaching and Learning (AATL); African Society for the Scientific Research (AASR), Mediterranean Center for Educational Social Research (MCESR), and International Digital Organization for Scientific Information (IDOSI) in cooperation with other institutions.

ICSTE2014 is an international forum for those who wish to present their projects and innovations, having also the opportunity to discuss the main aspects and the latest results in the fields of Science, Technology, Education and Research. Our aim is to inspire and provoke crucial discussions and debates. The event boasts critical thinking and reconsiders policies and practices.

ICSTE2014 seek a diverse and comprehensive program covering all areas of science and technology teaching, learning and development. The program includes a wide range of activities designed to facilitate the exchange of expertise, experience, and resources amongst colleagues.

The event would bring together more than 400 delegates including teachers, scientists, technologists, policy makers and graduate students from across the globe to promote exchange and discussion of issues relating to the theme and sub-themes.

I, on behalf of AATL/ASSR and cooperating partners feel honoured to be hosting the conference in Nigeria. We look forward to seeing you the conference.

Jacinta A. Opara, PhD
Co-Chair, ISC

Aim and Objectives

International Conference on Science and Technology Education (ICSTE2014) is an interdisciplinary forum for the presentation of original peer-reviewed, contributed and invited articles to improve and enhance science and technology education at all levels worldwide. Topics

covered can be categorized as *disciplinary* (biology, chemistry, physics, mathematics, computer science and engineering and the learning processes related to their acquisition and assessment of results), *technological* (computer, video, audio and print), and *organizational* (legislation, administration, implementation and teacher enhancement). Insofar as technology is playing an increasing role both in the understanding and the development of science disciplines and in the delivery of information, the journal includes it as a component of science education. The conference provides a stimulating and informative variety of papers geared toward theory and practice in the hope that common information shared among a broad coalition of individuals and groups involved in science education will facilitate future efforts. In addition to works in the fields mentioned above and case studies of exemplary implementations, the conference provides opportunity for exchange of ideas amongst scholars and professionals to help reach our common goal: excellence in science and technology education. The ICSTE2014 is a premier gathering of educators, professors, engineers, scientists, technologists, activists, administrators, innovators, policy makers, graduate students and others interested in sharing ideas, knowledge and experiences. The major objective is to provide a unique environment to sharing innovative practices, cutting-edge research and unique experiences as well as strategies.

International Scientific Committee

Prof. Gerhard Berchtold(Chair)

Universidad Azteca, Mexico

Prof. Erdal Toprakci

Ege University, Turkey

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Teachers Registration Council, Nigeria

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Vocational Training Institute, Mauritius

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Anadolu University, Turkey

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University Aurel Vlaicu, Romania

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Tribhuvan University, Nepal

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West Coast University, Panama

Prof. Timothy A. Falade

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International Association for the Scientific Knowledge, Portugal

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Sakarya University, Turkey

Prof. B.V. Toshev

University of Sofia, Bulgaria

Prof. Aslam Adeeb

Islamia University of Bahawalpur, Pakistan

Professor Orhan Karamustafaoglu

Amasya University, Turkey

Professor İzzet Kara

Pamukkale University, Turkey

Professor Sevilay Karamustafaoglu

Amasya University, Turkey

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European School Science Project, Granada-Spain

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European Chemistry Thematic Network Association, Belgium

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Allama Iqbal Open University, Pakistan

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Polytechnic Institute of Santarem, Portugal

Prof. Orifjan Namozov

Prague Development Centre (PRADEC), Czech Republic

Prof. Musharaf Khan

University of Peshawar, Pakistan

Prof. Luiela-Magdalena Csorba

University Aurel Vlaicu, Romania

Prof. Rajarshi Roy

National Institute of Technical Teachers' Training and Research, India

Prof. Samir Mohamed Alredaisy

University of Khartoun, Sudan

Prof. Gidey Yirga

Makelle University, Ethiopia

Mr. M. Ilyas Khan

Bentham Science Publishers Ltd

Dr. Ivan Genov

Science and Education Foundation, Bulgaria

Professor Oby Okonkwor

Nnamdi Azikiwe University, Awka-Nigeria

Prof. Afshan Akbar

G.C. University, Pakistan

Dr Anthonia U. Ejifugha

Alvan Ikoku College of Education, Owerri, Nigeria

Dr M.N. Modebelu

Michael Okpara University of Agriculture, Umudike-Nigeria

Mission of the Conference

The ICSTE is a global event with the mission of furthering the advancement and innovation in engineering, technology, science, agriculture, teaching, learning, industry, and development. The Conference serves as a means to connect and engage professors, engineers, technologists, researchers, consultants, innovators, managers, policy makers and others. The event offers an opportunity to meet and share ideas. It also inspire a new generation of global scientists and technology leaders in countries around the world.

CALL FOR PAPERS AND PANELS

Proposals are invited taking into consideration the motto, theme and sub- themes of the Conference. All proposals must be full texts. **We don't welcome only abstracts.** (See paper submission for details). The proposal's originality, its relationship to the Conference theme and the clarity of its objectives, organization and approach are factors considered in selection.

CONFERENCE THEME

Science and Technology Education for Development

SUB-THEMES AND TOPICS

- Historical Foundations of Science and Technology
- philosophy of Science and Technology in relation to educational issues
- Research and reviews of research in science and Technology education
- Curriculum, Science and Technology
- Economics of Science Education
- Psychological Issues in Science and Technology Education
- Gender, Science, Technology Education
- Culture, Science and Technology
- Effective practice in the teaching of science and Technology
- Analyses of issues of direct relevance to science and Technology education
- Classroom management in science and Technology education
- Assessment and evaluation in science and Technology education
- Teacher training in Science and Technology education
- Learning Strategies in Science education
- Educational Policy for Science and Technology
- Primary School science
- Food Science and Technology
- Fine and Applied Arts
- Science and Technology Policy
- Civil Engineering
- Mechanical Engineering
- Chemical Engineering
- Electronics/Electrical Engineering
- Computer Science
- Information Technology
- Library Science and Media Technology
- Project Management Technology
- Agricultural Science
- Adult Education for Science

- Conceptual understanding in Science and Technology education
 - misconception and misunderstanding in Science and Technology education
 - Curriculum development in Science and Technology education
 - Formal and informal Science and Technology education
 - Earth science education
 - Science and Technology Subjects in Secondary Schools
 - Science Teacher education
 - Vocational Teacher Education
 - Technical Teacher Education
 - Science, Technology Education and Sustainability
 - Engineering Education
 - Water Education
 - Vocational Education
 - Technical Education
 - Mathematics Education
 - Statistics Education
 - Educational Technology
 - Agricultural Science Education
 - Biology Education
 - Chemistry Education
 - Physics Education
 - Home Science/Management
 - Integrated Science Education
 - Health Education and Safety
 - Mathematics Education in relationship to Science and Technology education
 - Comparative Science and Technology education
 - Science and Technology Projects
 - Internationalization of Science and Technology
 - Education for a Sustainable Development including Human Rights
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- Social issues in Science & Technology Education
 - Science education and institutional religion, and how this is negotiated in schools
 - ICT, E-learning, distance education, smart schools, and science and technology education
 - Links between STE and Epistemology,
 - Socio-scientific issues in Science & Technology Education
 - Learners and Teachers' Conceptions and Competences in Science & Technology Education
 - Curricula and school textbooks in Science & Technology Education
 - Evaluation in Science & Technology Education
 - Practices and Didactic engineering in Science & Technology Education
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- New Trends and Approaches in Science Education
 - Learning and Teaching in Science Education

- Nature of Science and Scientific Literacy
- Assessment and Evaluation in Science Education
- Pre-service and In-service Science Teachers Education
- Informal-Outdoor Education
- Science Curriculum and evaluation
- ICT in Science Education
- Discussions of Environmental, Science, and Technology Education Issues
- Cognition and Instruction
- Environmental & Geographical Education
- Learning Environment
- Sustainability Education
- Science and Literacy
- Teacher Training/Education
- Instructional Design, Teaching Materials and Strategies
- Using Technology in Environmental & Science Education
- Cultural Studies in Environmental & Science Education
- Pedagogical Issues and Teaching/Learning Strategies
- Educational Technology
- Distance Education/Learning
- Computer Assisted Learning/Teaching
- Web Based Instruction/Training
- Metaphors, Analogies, Models, and Simulations for Teaching and Learning
- Qualitative Research and Methodologies

Who Should Attend

This is an excellent opportunity for scholars to come together from all over the world to share their works, experiences and ideas by presenting paper or by simply observing, and as with all likely events, there will be a number of programs and activities.

The Conference attracts a range of science educators, engineers, technologists, scientists, researchers, innovators, teachers, students, activists, administrators, professionals and others. Attendees join together to share ideas, experiences, views and their passion for quality teaching and learning.

If you want to chair a session, organize a panel, evaluate papers to be published in the congress proceeding, books or journals, contribute to the editing or any other offer to assist, please send an email to the secretariat.

Corporate Participation

As a global event for the advancement and innovation in learning, industry and technology a wide range of opportunities are available to present research-oriented/industrial papers. Corporate bodies can showcase and market their products and services. For information about corporate showcases and other corporate activities, please contact the secretariat.

General Submission Information

The Scientific Committee of the ICSTE2014 accepts only full-texts (ie abstracts and main text) together as proposals. All proposals must be in **English**. All proposals must adhere strictly to the instructions for formatting their submissions. Please see guidelines for presentations. All proposals must be accompanied with **Proposal form**. All submissions are subject to a blind review process. Papers submitted after **July 31, 2013** may not be published in the Conference Proceedings.

Categories of Presentation

The Technical Program of the Conference includes a wide range of submissions and activities designed to facilitate the exchange of ideas and information:

- Keynote Speakers/Invited Speakers
- Academic Papers
- Posters
- Tutorials
- Best Practices
- Roundtables
- Showcases
- Workshops
- Symposia

Note: Authors who are unable to attend will have the conference materials posted to their addresses immediately after the Conference. Please contact the conference secretariat for more details.

Submission Requirements

- Please see the guideline(**see Information for Authors**)
- All proposals must be in English.
- At least an author of each paper must be registered and pay the appropriate Conference fee.
- All communication will be with the corresponding author.
- Participants who registered for the Conference but unable to attend will have the Conference materials mailed to their registered contact address.
- All presenters must present at the time scheduled by the Committee. Requests for specific time slots will not be accepted
- The Conference provides basic equipment for presenters.
- ICSTE can offer limited financial support for participation.
- All Participants must pay appropriate Conference registration fee. However, we strive to keep our registration fee low for all attendees.
- Presentations that advertise commercial products will not be accepted. However, if you have a commercial product to show case, for exhibition or marketing, please contact the secretariat.

Information for Authors

1. The paper should be A4 format. Left, right, top and bottom margins should be 2.00 cm each. English is the official language of the conference.
2. Title should be 14-point, all in capital letters, bold and centered.
3. Font size throughout the paper should be 12-point in Garamond, in single space, and justified.
4. The whole text should be written with “Garamond”.
5. Do not give page numbers for the paper
6. A blank line should be left after the title. Names of authors, affiliations and e-mails should be provided after the title.
7. Following the authors’ information, a 200-word abstract should be provided with five keywords. The “**Abstract**” should be a summary of the paper.

8. Graphics and pictures should be prepared in black and white.
9. One blank line should be allowed between the components of the paper (i.e. introduction, methods and procedures, results, conclusion, references.). Main headings should be centered, bold and capitalized. The second level of headings should be title case and bold. The third level should be italicized and upper- and lower-case heading.
10. For titles of tables, graphics and pictures, sentence case should be used.
11. Texts used in Tables, graphics and pictures should be Garamond. The font size can be reduced to 10 pt.
12. **References** should be at the end of the paper and should be listed alphabetically. References and citations within the text should be prepared in the APA format.
13. Abbreviations should comply with the standard use. They should be given in full format at the first place they are used.
14. The paper should be maximum 10 pages
15. SI unit should be employed where applicable
16. Only proposals containing abstract and full texts are acceptable. **We do not welcome only abstracts.**
17. All submissions must be by email attachment preferably in MS words. **We do not accept hard copies**
18. All papers must adhere to this template in format. No paper can be processed if not formatted according to the stated rules and regulations.
19. Papers submitted after **July 31, 2013** may be presented at the conference but they may not be published in the conference book
20. The first 50 registered participants will collect free copies of our previous publications.
21. All papers should be submitted to: **editoricste@gmail.com**

Selection Criteria

All proposals (in English) are selected on basis of clarity, quality and relevance to the Conference theme and Sub- themes. A blind review process will be used to evaluate all submissions. ICSTE regrets that it cannot select all proposals submitted. It should not be assumed that prior participation in our event guarantees selection for ICSTE2014. Space is limited.

Grant and Support

Aiming at encouraging intended participants, the conference organizers have created a solidarity fund. A limited sponsorship is available for participants from the developing countries. Young scholars below the rank of Senior Lecturer or its equivalent and women are particularly encouraged to apply. Support may be in the form of full sponsorship including travel grants and boarding or partial sponsorship.

Best Paper Awards

A sub-committee on Best Paper Awards will consider outstanding presentations for several designated awards. The yardstick is quality, innovation and application. All accepted papers are eligible for consideration. There will be an Award for Outstanding Student Paper. Award winning papers will receive certificates and will be highlighted in future ASSR/AATL events.

Registration Fee

All Participants must complete the registration form. Payment of Conference registration should be made in USD in the form of bank transfer (all costs at Participant's charge). We request that you send us a

computer print-out copy of the bank transfer and the duly completed registration form by email attachment. Additional information is provided on the registration form. Without the receipt of your completed registration form, print-out copy of the bank transfer and signed Copyright Agreement, it means you are not registered for the Conference.

Conference Fees

Conference Registration:	International	Local
<i>Registration:</i>	US \$250	N35500
<i>Registration at Venue</i>	US\$300	N45500
<i>Corporate Participation</i>	US\$350	N55000

The bank transfer is the method of payment. Please see the Conference registration form for details.

NB: Delegates resident in Nigeria can pay into the bank details below.

Name of Bank Account: Beverly Resources

Bank Account No: 1015407653

Name of Bank: United Bank for Africa PLC (UBA)

Subject: ICSTE2014

Entitlement of Registered Delegates

- Entry to all sessions of the Conference
- Conference bag/tag
- Conference gift items
- Coffee breaks
- Certificate of Participation
- Certificate of Authorship (paper presenters only)
- Congress programme
- Admission to social/cultural/tourist activities
- Conference proceedings
- Invoice / receipt of payment
- Cocktail of the Conference
- Special hotel booking at discounted rate
- Onsite wireless network
- Technical support
- Conference group Photos

Publication

Each paper will be included in conference programme. Authors of all selected papers will have their works published in the Conference proceedings with ISBN/ISSN. Papers of best quality will be published in some selected journals or other publications (ISSN). Some carefully selected papers will be available online.

Practical Information

Accommodation

Cheap hotels are available around the conference venue. Information on accommodation is available on request. The hotel offers reduced rates for conference delegates. Delegates may make other arrangements if they wish. If any participants need accommodation, the conference organizers can reserve rooms for them. Price of accommodation ranges from US\$85 to US\$350 per night.

Visa and Travel Information

International guests visiting Nigeria may require a visa. Visitors from West Africa do not need a visa. Participants should contact the Nigerian Embassy or Consulate nearest to them for more information. Registered participants who need Invitation Letter/Acceptance Letter to facilitate their visa application can send us email. Detailed list of Nigerian Embassy/Consulates and the requirements for visa application can be obtained from the nearest Nigerian Embassy.

Insurance and Inoculations

Visitors entering Nigeria require travel/health insurance and some medical inoculations according to immigrations laws. International participants should contact the nearest Nigerian Embassies/High Commissions/Consulates and the requirements for travel/health insurance and inoculations.

Airport Shuttle Bus

Aiming at assisting delegates to quickly move from Owerri Airport to the Conference venue, the ICSTE Committee organizes a shuttle. Please contact the secretariat for the shuttle schedule and arrangements.

Adverting and Exhibitions

The ICSTE welcomes requests for placing adverts on their event website, Conference materials, etc. We also invite corporate agencies/individuals or Associations that wish to make exhibitions, trade fair during the events. Adverts and exhibitions may be charged.

Contact Information

For more information or clarification on any aspect of the Conference, please contact the conference organizers(Dr Jacinta Opara, Co-Chair, ICSTE2014 International Scientific Committee, Tel: +2348033392236 ; email:editoricste@gmail.com)

