

**SUDAN UNIVERSITY OF SCIENCE AND TECHNOLOGY**  
**Journal of Science and Technology**  
**ENGINEERING AND COMPUTER SCIENCES**  
**Biannual Scientific Refereed Journal**

**Editor-in-Chief**

Prof. Dr. Izzeldin Mohammed Osman

**Deputy Editor-in-Chief**

Dr. Rashid A. Saeed

**Postal address:**

Editor-in chief  
Journal of Science and Technology  
P. O. Box 407  
SudanUniversity of Science and Technology  
Khartoum, Sudan  
Tel: 0155660961  
E-mail: [Jecs@sustech.edu](mailto:Jecs@sustech.edu)

**Annual Subscriptions Rates:** For individuals inland (10 Sudanese Pound, SDG), for institutions inland (180 SDG). For individuals abroad (US\$ 30), for institutions abroad (US\$ 100). Prices do not include postage and insurance. Prices are subjected to change without prior notice.

**Journal of Science and Technology**  
**ENGINEERING AND COMPUTER SCIENCES**

**Board of Directors:**

1. Prof. Dr. Hashim Ali Mohammed Salim	President
2. Prof. Dr. Gadalla Abdalla Elhassan	Chairman
3. Prof. Dr. Amel Omer Bakhiet	Coordinator
4. Prof. Dr. Izzeldin Mohammed Osman	Member
5. Prof. Dr. Galal Eldeen Alzahri	Member
6. Prof. Dr. Osman Gamaleldin Osman	Member
7. Prof. Dr. Nafie A. Almuslet	Member
8. Dr. Elsadig Mohamed Ibrahim Ali	Member
9. Dr. Khalid Hassan Ismail Elbeli	Member

**Editorial Board:**

1. Prof. Dr. Izzeldin Mohamed Osman	Editor-in-Chief
2. Dr. Rashid Abdelhaleem Saeed	Deputy Editor-in-Chief
3. Prof. Dr. Isam Mohammed Abdel-Magid	Member
4. Prof. Dr. Tagelsir Ibrahim Mohamed	Member
5. Dr. Abdelrahman Elzubair Mohamed	Member
6. Dr. Sharief Fadul Babikir	Member
7. Dr. Awad Saad Hassan	Member
8. Dr. Sumya Abdelmoneim Mohamed	Member
9. Dr. Abdelaziz Yosif Mohammed	Member
10. Dr. Hoida Ali Abdalgadir Ahmed	Member
11. Zahir Babikir Elkamali	Manager
12. Sarah Mohammed Borma	Editorial Secretary

## **Guide lines for 2012 and forth coming manuscripts:**

The Journal of Science and Technology, a refereed biannual journal, is published by the Sudan University of Science and Technology in a series of specialized issues encompassing:

- 1) Agricultural and Veterinary Science Series (AVSS),
- 2) Engineering and Computer Sciences Series (ECSS),
- 3) Islamic Science and Research Series (ISRS),
- 4) Humanities Science Series (HSS),
- 5) Natural and Medical Sciences Series (NMSS), and
- 6) Economic Sciences Series (ESS)

### **Eligibility for publication**

- Manuscripts eligible for publication include: original research papers, review articles and short communications.
- Eligibility for publication, after consultation with editorial board of each of the series, are papers presented in symposia and conferences. Other relevant submissions will be considered.
- The journal accepts manuscripts written in English OR Arabic languages.
- Articles submitted to the journal should be original, relevant, and clearly presented. Moreover, they should comply with journalguide lines. Failure to do so will result in return of the manuscript and delays its publication.
- Manuscripts are to be peer reviewed by two anonymous reviewers.

### **Submission declaration and verification:**

Submission of an article implies that the work described:

- Is not simultaneously submitted to or previously published in any other scientific or technical journal, except in the form of an abstract, annual report, or as part of a published lecture or academic thesis,
- Is approved by all authors and tactically or explicitly by the authority where the work was conducted.
- If accepted, will not be published elsewhere, in the same form, in English or any other language, without a written consent from the journal managerial board.

### **Preparation of manuscripts:**

- Text should not exceed 7000words.
- Text ought to be typed double spaced on one side of A4 size good quality white paper.
- English language used and spelling should conform to Oxford Dictionary.
- Times New Romans font is to be adhered to with size12.
- Top, bottom and side margins should be 33 mm each.
- Pages should be numbered in Arabic numbers at the bottom centre starting with the title page.
- Manuscript should follow the order 1) title page, 2) abstract (in English and, if applicable, in Arabic) and keywords, 3) introduction, 4) materials and methods, 5) results and discussion, 6) conclusions and recommondations, 7) acknowledgement (if

any), 8) references and bibliographies, 9) figure legends, 10) tables (full with caption and footnotes) and 11) figures.

- Each figure is to be labeled on the back in soft pencil with the author's name and figure number.
- Authors are advised to refer to a recent issue of the journal for style and formatting.

**Title page:**

Title page should contain: i) title of the manuscript (this should be brief and informative, reflect the contents of the paper and be suitable for indexing), ii) author(s) name(s) and affiliation(s), if authors are differently affiliated Arabic numbers should be wrote as superscripts together with footnotes, are to be used to indicate affiliations and iii) name, postal and e-mail addresses, as well as telephone number, of corresponding author (indicated by asterisk) to whom all correspondence pertaining to the manuscript are to be made.

**Abstract:**

Abstract should not exceed 300 words, and should be written as a block paragraph. It is a brief description of the entire paper. It should contain a brief and concise description of the problem, objectives, methodology, findings with statistical significance, conclusions and implications of the work.

**Keywords:**

The keywords (3-5) should be i) carefully selected and ii) not included in the title.

**Introduction:**

The author(s) has to i) introduce the investigated problem, ii) provide a concise review of relevant previous researches citing significant findings and major conclusions, iii) the approach adopted to solve the problem and iv) relevant hypothesis, objectives and rationale for the study.

**Materials and methods:**

This section has to describe where, when and how the study was conducted, materials and equipment used. The description should be in sufficient details that the experiment can be replicated or reevaluated by peers. The materials and methods section may be divided into subsections as need be. Although the subsections may vary across disciplines, the most common are materials, apparatuses and procedures. Materials, technical specifications, source or method of preparation, should be detailed. Scientific names should be used with the common name in parenthesis for the first time. Thereafter, the common name may be used throughout. Methods have to be enlisted in chronological order. Known methods need to be mentioned, but not described. New methods or techniques should be detailed. All quantities should be in the international system (SI) of units.

**Results:**

This section summarizes data collected and type of statistic used for analysis. It should include description of results and not an explanation of results. Tables and figures are normally used to present results and supplement the text. However, good quality photographs may sometimes be used. All figures, photographs and tables, should be numbered by Arabic numbers. Figures, photographs and tables should be limited to five each.

**Discussion:**

In this section results are evaluated and interpreted, but not repeated. Consistency and relationships of results with previous researches and theories are to be discussed. Practical impact and implications on future researches should be pinpointed. If the discussion is relatively brief, it could be combined with the result section as results and discussion.

**References:**

The journal is adopting the Citation-sequence System (C-S). Each citation in the text is identified by Arabic number written as a superscript in the order it appears in the text. The superscripts are to be placed in round brackets with commas and no space. The reference list should be arranged sequentially by numbers and not alphabetical. The reference style differs for journals, books, edited books, theses and conferences. Each reference has several sections which are separated by periods, for example: author(s) name(s), year of publication (in round brackets), article title and journal. All sources cited in the text must appear in the reference list. Unpublished work could be cited in text, but not in the reference list. It could be cited as unpublished data or personal communications. The author with initials and year should be included, in text, in parenthesis e.g (Ali, G. A., 2014, unpublished data or Ali, G. A., 2014, personal communication). The reference listing format below has to be strictly adhered to:

**Articles from Journals:**

Author(s) surname(s) + author(s) initials + (year of publication). + title of article. + journal title (Full and in italics) + volume number (in bold): + pages inclusive (first – last).

**Example:**

Kubu L. and Ayafor T. (2014). Structure of a novel phytoecdysteroid from *Vitex fisherii*. *Journal of Chemical Ecology* 16: 2581-2588.

**Books:**

Author(s) surnames, + author(s) initials, + (year of publication). + title of book (in italics) + volume number (in italics). + publisher + city and country of publication.

**Example:**

Heibbron, D. S., Cadogan, J. C. and Slater, C. A. (2013). *Dictionary of Organic Compounds Volume 4*. Eyre and Spottiest wood Publishers Ltd. London.

**Edited books:**

Author(s) name(s), + author(s) initials + (year of publication). + title of publication + Title of book (in italics) + editors in parenthesis. + pages inclusive. + Publisher+ City and country of publication.

**Example:**

Dayan, F. E. and Duke, S. O. (2009). Clues for the search for new herbicides. In: *Allelopathy a Physiological Process with Ecological Implications* (M. J. Manuel, N. Pedrol and L. Gonzalez eds). Pp 63-84. Springer the Netherlands

**Conferences and workshops Proceedings:**

Author(s) name(s), + author(s) initials + (year of publication). + title of article. + Title of conference symposium or workshop (in italics) + editors in parenthesis. + pages inclusive. + Publisher and City or country of publication.

**Example:**

Salle, G. Dembele, B. Raynal-Roque, A. Hallaia, M. F. Tuquest, C. (2012). Biological aspects of *Striga* species, pest of food crops. In: *Proceeding of the Fourth International Symposium on Parasitic Weeds* (H. C. Webber and W. Forstreuter eds). Pp367-375. Philips Universitat. Marburg, Germany.

**Theses and dissertations:**

Author(s) name(s), + author(s) initials + (year of publication). + title of thesis (in italic). + University, + country of publication.

**Example:**

Babiker, A. G. T. (2012). *Behaviour and Fate of Pesticides in Plant-Soil Systems*. University of Glasgow, Galsgow UK.

**Websites:**

Reference to websites should give author(s) name, if known + title of cited page + URL in full + date of posting (in parenthesis).

**Example:**

<http://davesgarden.com/guids> ( May2012)

**Submission of manuscripts**

All articles submitted to the journal should comply with the set of guide lines stated above. The original manuscript and three copies should be submitted to the journal editorial office (editor-in-chief of the respective journal series).

Articles also can be submitted via email to:

[jeecs@sustech.edu](mailto:jeecs@sustech.edu)

OR by online submission through the link:

<http://journal.sustech.edu/>

Submissions should be accompanied by a covering letter containing the title of the article. As a rule registered mail should be used. The journal is to confirm reception of the manuscript. The referee's reports, the decision of the editorial board on publication of the article and any other relevant instructions will be sent to the corresponding author.

The manuscript should be amended and sent back to the journal. Upon acceptance of the amended article the author(s) will be asked to provide a soft copy of the entire manuscript. A proof of the article will be sent to the corresponding author to correct typographic errors only. The proof should be returned within 14 days. A delay in response delays publication.

**Copyright**

Upon acceptance for publication an article becomes a copyright of the Journal of Science and Technology. The corresponding author is to sign, on behalf of the other authors, a transfer of copyright form. The latter can be downloaded from website

<http://www.sustech.edu/emagazine>. Articles will not be published until a signed transfer of copyright form is received.

On publication an issue of the journal containing the article together with five reprints will be sent to the corresponding author.

**TABLE OF CONTENTS**

<b>No.</b>	<b>Subject and Authors</b>	<b>Page</b>
1.	Gum Arabic Effects on Drilling Water Base Fluids Behaviour <i>ShamsElflah A. A. Balola, Ahmed A. Ibrahim, Abdalla Wagialla</i>	1
2.	Performance Analysis of Isolated Self-Excited Reluctance Generators Connected To Diode Bridge Rectifier <i>Nagm Eldeen Abdo mustafa Hassanain</i>	8
3.	Virtual Failure Influence of Roseires Dam On Khartoum City Using HEC-RAS Hydraulic Simulation Modeling <i>Kamaleldin ELsidig Bashar Basim Hussein Khudair Ghassan Khalaf khalid</i>	14
4.	Fixed Wings UAV Direction Control And Algorithms <i>Mohamed Khalil, Aisha-Hassan A. Hashim, Sharief Babikir and Tahani Abdullah</i>	23
5.	Impacts Of Polyanionic Cellulose Polymer (PAC-LV) On Drilling Fluids Properties <i>Abusabah E. Elemam, Rashid A. Hussien, Ahmed A. Ibrahim, Sumya A. Mohamed</i>	30
6.	Flood Modeling Water Appraisal And Land : A Case Study Of Gash River Reclamation <i>Asaddig M. Ibrahim , Abbas Ib. Abdalla, El Saddig Elh. Elhassan</i>	37
7.	Design Of Digital Model For Re-Planning Of Informal Settlements Using Geographic Information Systems <i>Abdelrahim E.A.Elhag Harith W. A. Ahmed</i>	46
8.	The Accuracy of Temperature Monitoring Of The Incubator For Newborns <i>Eltahir Mohammed Hussein, Mahmoud Omer Ali</i>	58