

## **FINAL CONFERENCE PROGRAM**

**Welcome  
to the**

**Joint American Society of Nepalese Engineers (ASNEngr) and  
Computer Association of Nepal-USA (CAN-USA) Conference**

**(2014 Joint ASNEngr/CAN-USA Annual Conference)**

*(7<sup>th</sup> ASNEngr Annual Conference and Meeting and 7<sup>th</sup> CAN-USA Annual Development  
Conference)*

**“Applications of Engineering, Science and Technology in building a  
Safer, Better and Sustainable Society”**

### **Conference Organized By**

**American Society of Nepalese Engineers (ASNEngr)**

P. O. Box 39524, 4904 York Road

Baltimore, Maryland 21212-9998, USA

Email: [info@ASNEngr.org](mailto:info@ASNEngr.org) / Web: [www.ASNEngr.org](http://www.ASNEngr.org)

and

**Computer Association of Nepal, USA (CAN-USA)**

PO Box 105, Pleasanton, California 94566, USA

Email: [info@can-usa.org](mailto:info@can-usa.org) / Web: [www.can-usa.org](http://www.can-usa.org)

### **Conference Hosted By**

**ASNEngr/Nepalese Engineering & Scientific Community of Arizona**

### **Venue**

**Memorial Union Hall- Alumni Lounge**

**Arizona State University, 301 E. Orange Mall, Tempe, AZ 85281, U.S.A.**

### **Date**

**Saturday, June 21- Sunday, June 22, 2014**

### **Conference Websites**

**[www.ASNEngr.org](http://www.ASNEngr.org) and [www.can-usa.org](http://www.can-usa.org)**

## WELCOME FROM CONFERENCE CHAIRS

On behalf of the Conference Organizing Committee of American Society of Nepalese Engineers (ASNEngr) and Computer Association of Nepal-USA (CAN-USA), we would like to extend our greetings and warm welcome to you to the 2014 Joint ASNEngr/CAN-USA Conference being held at the Arizona State University campus in Tempe, AZ on 21<sup>st</sup> and 22<sup>nd</sup> of June 2014. This conference, seventh in the series for each organization, and fifth joint endeavor, is thankfully hosted by American Society of Nepalese Engineers (ASNEngr)/Nepalese engineering, scientific, and professional community of Arizona.

This joint conference has a fitting theme of “*Applications of Engineering, Science and Technology in building a Safer, Better and Sustainable Society*” with the principal objective of bringing the engineers, scientists, students and professionals in related areas together on a common platform for sharing and disseminating knowledge and experience with each other and with broader scientific and engineering communities.

The technical program includes four sessions, including “Plenary Keynote/Invited Lectures;” “*Earthquake Preparedness, Disaster Relief, and Infrastructure Safety in Nepal;*” “*Education, Engineering, and Technologies as Related to Nepal and Developing Countries;*” and “*Recent Advances in Engineering and Sciences.*” Each of these sessions will feature individual presentations and question-answer forum to facilitate sharing of knowledge and experience among fellow engineers, scientists and professionals. This year we are proud to have a plenary session consisting of two Keynote and one Invited guest lectures on very timely and important topics related to the conference theme presented by three distinguished individuals, Dr. Bharat K. Pahari, Dean of Institute of Engineering/Pulchowk, Nepal; Dr. Garry Dirks, Director of Julie Ann Wrigley Global Institute of Sustainability, Arizona State University; and Dr. Govindasamy Tamizhmani, Director of Photovoltaic Reliability laboratory, Arizona State University and the president of TUV Rheinland PTL, Tempe, AZ. The presenters and participants in the technical sessions are engineers, scientists, and professionals who come from a broad base, including academia, government agencies, and leading private and multinational industries. The program covers a wide variety of scientific areas ranging from disaster preparedness to earthquake safety and emergency communication, to bio-sciences, energy and environmental issues to recent advances in engineering and education.

We would like to express our heartfelt gratitude to the authors who submitted their abstracts and are willing to share their research results and knowledge to the conference attendees. We believe that the presentations and forum for discussion at the conference will give all the participants ample opportunities to share their knowledge of research and development in the pertinent area and create a common discussion ground for further enhancement of such research and knowledge.

We would like to thank the conference attendees for taking their valuable time in participating and supporting the conference. Our sincere thanks are due to all organizing committee members, in particular the Local committee members at Greater Phoenix area, for their tireless effort and countless hours of voluntary service and to the members of the Board of Directors of ASNEngr and CAN-USA for their valuable suggestions. Last but not least, we would like to express our deep appreciations to each and every distinguished invited guest in attendance, and all sponsors/donors for their generous support contributing to the success of this conference. We, wish you have an enriching and memorable time at the conference, and are committed to making that happen.

With warm regards,



Rajendra K. Shrestha, Ph.D.,  
General Co-Chair  
President, ASNEngr  
ConocoPhillips Company,  
Houston, TX, USA



Amod Pokharel, Ph.D.  
General Co-Chair  
President, CAN-USA  
University of California,  
Berkeley, CA



Ramesh B. Malla, Ph.D.,  
Technical Co-Chair  
Founding President,  
ASNEngr  
University of Connecticut,  
Storrs, CT, USA



Pradeep Khanal,  
Technical Co-Chair  
Vice- President,  
CAN-USA  
Intel Corp, Santa Clara,  
CA



Achyut Shrestha  
Chair, Local Organizing  
Committee  
Member, Board of  
Directors, ASNEngr,  
Phoenix, AZ



**American Society of Nepalese Engineers (ASNEngr) and Computer Association of  
Nepal-USA (CAN-USA)  
Present**

**2014 Joint ASNEngr/CAN-USA Annual Conference**

(7th ASNEngr Annual Conference and Meeting / 7th CAN-USA Annual Development Conference)

**“Applications of Engineering, Science and Technology in building a Safer, Better and  
Sustainable Society”**

**Date:** June 21-22, 2014

**Venue:** Memorial Union Hall- Alumni Lounge

Arizona State University, 301 E. Orange Mall, Tempe, AZ 85281, U.S.A.

**(Hosted by:** ASNEngr/Nepalese Engineering & Scientific Community of Arizona )

*You are cordially invited to attend the conference.  
For registration, please visit – [http://www.asnengr.org/conference\\_registration.php](http://www.asnengr.org/conference_registration.php)*

**-- Overall Program Schedule at-a-Glance--**

**Saturday, June 21, 2014**

8:00 AM – 1:00 PM	<b>On-Site Registration</b>	(Room 202)
8:30 AM – 9:00 AM	<b>Conference Opening</b>	(Room 202)
9:00 AM – 10:30 AM	<b>Session I (Plenary)</b>	(Room 202)
<b>Session Title:</b> Plenary Session (Keynote and Invited Guest Speakers)-		
10:40 AM – 12:20 Noon	<b>Session II</b>	(Room 202)
<b>Session Title:</b> Session Title: Earthquake Preparedness, Disaster Relief, and Infrastructure Safety in Nepal (5 Presentations; 20 minutes each)		
12:20 PM- 1:30 PM	<b>Luncheon</b>	(Room 202)
1:30 AM –3:10 APM	<b>Session III</b>	(Room 202)
<b>Session Title:</b> Education, Engineering, and Technologies as Related to Nepal and Developing Countries (5 Presentations; 20 minutes each)		
3:20 PM –5:00 PM	<b>Technical Session IV</b>	(Room 202)
<b>Session Title:</b> Recent Advances in Engineering and Sciences (4 Presentations; 20 minutes each)		
5:00 PM – 6:00 PM	<b>ASNEngr Annual General Membership and Board of Directors Meeting</b> (Room 202)	
6:00 PM – 7:30 PM	<b>ASU Chandler Innovation Center Visit</b> (249 E. Chicago Street, Chandler, AZ)	
8:00 PM – 10:00 PM	<b>Networking Dinner Program</b> (Taj Restaurant, 6245 W Chandler Blvd, Chandler, AZ )	

**Sunday, June 22, 2012**

9:00 AM - 12:00 Noon	<b>Joint Nepal –U.S. Nepali Engineering &amp; Scientific Community Discussion Forum</b> (Venue: Meeting room, J.A. Wrigley Global Institute of Sustainability, ASU, Tempe, AZ)
9:00 AM - 12:00 Noon	<b>Grand Canyon, Sedona, Flagstaff, etc.. (for those interested). Conference Closure</b>

**[Please see the following pages for details of the Program]**

-----\*\*\*\*\*-----



**American Society of Nepalese Engineers (ASNEngr) and Computer  
Association of Nepal-USA (CAN-USA)  
Present**

**2014 Joint ASNEngr/CAN-USA Annual Conference**

(7th ASNEngr Annual Conference and Meeting / 7th CAN-USA Annual Development Conference)

**“Applications of Engineering, Science and Technology in building a Safer, Better and  
Sustainable Society”**

**Date:** June 21-22, 2014

**Venue:** Memorial Union Hall- Alumni Lounge  
Arizona State University, 301 E. Orange Mall, Tempe, AZ 85281, U.S.A.  
**(Hosted by:** ASNEngr/Nepalese Engineering & Scientific Community of Arizona)

**You are cordially invited to attend the conference.  
For registration, please visit – <http://www.can-usa.org/conference-registration/>**

**[Detail Conference Program Schedule](#)**

**Saturday, June 21, 2014**

**Registration/Breakfast**

8:00 AM

**Conference Opening**

8:30 AM – 9:00 AM

*Conference Welcome and Organization Introduction –*

by **Rajendra K. Shrestha, Ph.D.**, Conference General Co-Chair and President, American Society of Nepalese Engineers (ASNEngr); and **Amod Pokhrel, Ph.D.**, Conference General Co-Chair and President, Computer Association of Nepal-USA (CAN-USA).

*Conference Program Overview –*

by **Ramesh B. Malla, Ph.D.**, Conference Technical Co-Chair and Founding President, ASNEngr; and **Pradeep Khanal**, Conference Technical Co-Chair and Vice President, CAN-USA.

*Local Organizing Committee Welcome –*

by **Achyut Shrestha**, Chair, Local Conference Organizing Committee and Member, Board of Directors, ASNEngr.

**Session I (PLENARY)** 9:00 AM – 10:30 AM (Room 202)

**Session Title:** *Plenary Session (Keynote and Invited Guest Speakers and Presentations)*

**Session Chairs:** *Ramesh B. Malla, Ph.D.*, Founding President, ASNEngr; University of Connecticut, Storrs, CT; and *Nalini Chhetri, Ph.D.*, Arizona State University, Tempe, AZ.

**Invited Keynotes:**

**9:00AM - 9:30AM (Keynote Lecture):**

**Speaker:** *Bharat Raj Pahari, Ph.D.*, Dean, Institute of Engineering, Pulchowk, Lalitpur, Nepal  
**Topic:** *"Role of Engineering, Science and Technology in Building a Safer and Sustainable Society in Nepal"*

**9:30AM - 10:00AM (Keynote Lecture):**

**Speaker:** *Gary Dirks, Ph.D.*, Director, Julie Ann Wrigley Global Institute of Sustainability, Arizona State University, Tempe, AZ

**Topic:** *"Global energy situation and future scenarios in developing countries"*

**Invited Guest:**

**10:00AM - 10:30AM**

**Speaker:** by *Govindasamy Tamizhmani, Ph.D.*, Director of Photovoltaic Reliability laboratory, Arizona State University and President of TUV Rheinland PTL, Tempe, AZ

**Topic:** *"Solar Photovoltaics: Vocational Training Tool for Trainers and Technicians"*

**Break** 10:30 AM – 10:40 AM

**Session II** 10:40 AM – 12:20 Noon (Room 202)

**Session Title:** *Earthquake Preparedness, Disaster Relief, and Infrastructure Safety in Nepal*

**Session Chairs:** *Ananta Baidya, P.E.*, San Diego, CA; and *Netra Chhetri, Ph.D.*, Arizona State University, Tempe, AZ

**10:40 AM – 11:00 AM**

**"Overview of the Joint ANMF/ASNEngr/CAN-USA Initiative on Earthquake Preparedness and Disaster Relief in Nepal"** by *Ramesh B. Malla, Ph.D.*, Founding President, American Society of Nepalese Engineers (ASNEngr) and Chair, Committee on Joint ANMF/ASNEngr/CAN-USA Initiative on Earthquake Preparedness and Disaster Relief in Nepal; University of Connecticut, Storrs, CT, USA.

**11:00 AM – 11:20 AM**

**"Some Proposals for Planning Regulations for Earthquake Resilient Urban Development in Nepal"** by *Ambika P. Adhikari, Dr. Des., AICP*, Arizona State University, Tempe, AZ, USA; and *Kanhaiya Kayastha, S.E., FASCE.*, Los Angeles, CA, USA.

**11:20 AM – 11:40 AM**

**"Disaster Preparedness: Get A Kit. Make A Plan. Be Informed"** by *Siru Prasai, M.B.B.S, MS, MPH*, Maricopa County Department of Public Health, Phoenix, AZ, USA.

**11:40 AM – 12:00 Noon**

*"A joint Nepal-USA initiative for disaster communications"* by **Suresh P. Ojha**, Santa Clara, CA, USA.

**12:00 PM – 12:20 PM**

*"A need for focus on safety in the planning, development, design, construction, and maintenance of Nepal's highways"*, by **Bharat Kandel, P.E.**, Department of Transportation, Mesa, AZ, USA.

**Lunch Break (provided)**

12:20 PM -1:30 PM

(Room 202)

**Technical Session III**

1:30 PM – 3:10 PM

(Room 202)

**Session Title:** *Engineering, Development, and Education as Related to Nepal and Developing Countries*

**Session Chairs:** *Ambika Adhikari, Dr. Des., AICP*, Arizona State University, Tempe, AZ; and *Murari Pradhan, Ph.D., P.E.*, Arizona Department of Transportation, Phoenix, AZ, USA.

**1:30 PM – 1:50 PM**

*"Electric Products and Services for Rural Nepal"* by **Nathan Johnson, Ph.D.**, Arizona State University, Tempe, AZ, USA.

**1:50 PM – 2:10 PM**

*"Leveraging diaspora for desired social outcomes in Nepal"* by **Nalini Chhetri, Ph.D.**, Arizona State University, Tempe, AZ, USA.

**2:10 PM – 2:30 PM**

*"The Humanitarian Engineering Degree Program at ASU"* by **Brad Rogers, Ph.D. and Mark Henderson, Ph.D.**, Arizona State University, Tempe, AZ, USA.

**2:30 PM – 2:50 PM**

*"What explains the recent surge of apple orchards in Nepal's Mustang district?"* by **Netra Chhetri, Ph.D.**, Arizona State University, Tempe, AZ, USA.

**2:50 PM – 3:10 PM**

*"Involvement Nepal, Pre/Post Retirement"* by **Ananta Ram Baidya, P.E.**, San Diego, CA, USA.

**Break**

3:10 PM – 3:20 PM

**Technical Session IV**

3:20 PM – 4:40 PM

(Room 202)

**Session Title:** *Recent Advances in Engineering and Sciences*

**Session Chairs:** *Pradeep Khanal*, Intel Corp., Santa Clara, CA; and *Sudip Koirala, Ph.D.*, Intel Corp., Chandler, AZ.

**3:20 PM – 3:40 PM**

*"Renewable Energy Technologies for Developing World"* by **Lek Acharya**, Sun Electronics, Phoenix, AZ, USA.

**3:40 PM - 4:00 PM**

**"Information Technology"** by *Mithun Bista*, Occidental Fire & Casualty, Scottsdale, AZ, USA.

**4:00 PM – 4:20 PM**

**"Residential water pump operation and monitoring in Smart phone"** by *Achyut Shrestha*, Apollo Group, Inc., Phoenix, AZ, USA.

**4:20 PM –4:40 PM**

**"Crum Rubber Modified Asphalt"** by *Murari Pradhan, Ph.D., P.E.*, Arizona Department of Transportation (ADOT), Phoenix, AZ, USA.

**4:40 PM –5:00 PM**

**"Structural Analysis and Design of a Human Habitat Concept on the Moon"** by *Ramesh B. Malla, Ph.D. and Kevin Brown*, University of Connecticut, Storrs, CT, U.S.A.

**ASNEngr General Membership Meeting.** 5:00 PM – 6:00 PM (Room 202)  
*Annual General Membership Meeting of the American Society of Nepalese Engineers (ASNEngr)*

**Chandler Innovation Center Visit** 6:00 PM – 7:30 PM (Off campus)  
ASU Innovation Hub /Tech Center. Address: 249 E. Chicago Street, Chandler, AZ

**Networking Mixer (includes dinner)** 8:00 PM – 10:00 PM (Off campus)  
*(Location: Taj Restaurant, 6245 W Chandler Blvd, Chandler, AZ 85226)*

### **Sunday, June 22, 2012**

**Special Forum:** 9:00 AM - 12:00 Noon  
*(Venue: Wrigley Hall, Room: 323;, J.A. Wrigley Global Institute of Sustainability, ASU, Tempe, AZ)*  
**Session Title:** *Joint Nepal –U.S. Nepali Engineering & Scientific Community Discussion Forum*

**Conference Closure** 12:00 Noon

**Site Seeing Tour** Departure time: 9:00 AM  
*Locations: Grand Canyon, Sedona, Flagstaff, etc. (for those interested).*

## Conference Sponsors and Donors

The support from the following organizations and individuals is gratefully appreciated:

### Platinum Sponsor:



### Silver Sponsors:



### Individual Donors:

- Ambika Adhikari, Dr. Des, AICP, Chandler, AZ
- Ananta Ram Baidya, P.E San Diego, CA
- Laxman Devkota, Ph.D, P.E., Glendale, AZ
- Ramesh Gauchan, President, DelhiPalaceFlagstaff.com Flagstaff, AZ
- Dilli Gurung SWE Chandler, AZ
- Kanhaiya Kayastha, PE, SE, SECB, F.ASCE, Orange County, CA
- Prem Khatri, President, Nafausa.org, Tucson, AZ
- Ramesh B. Malla, Ph.D., Founding President, ASNEng, Glastonbury, CT
- Sameer Pandey, P.E., Tempe, AZ
- Rohini Sharma, SME, Chandler, AZ
- Achyut Shrestha, SWE, Tempe, AZ
- Rajendra Shrestha Ph.D., President, ASNEng, Houston, TX



## Conference Organizing Committees

### General Chairs:

**Rajendra K. Shrestha, Ph.D.** (*President, ASNEng*)  
ConocoPhillips Company, Houston, TX (E-mail: [RShrestha1234@yahoo.com](mailto:RShrestha1234@yahoo.com))  
**Amod K. Pokhrel, Ph.D.** (*President, CAN-USA*)  
University of California, Berkeley, CA (E-mail: [amodpokhrel@gmail.com](mailto:amodpokhrel@gmail.com))

### Technical Chairs:

**Ramesh B. Malla, Ph.D.** (*Founding President, ASNEng*)  
University of Connecticut, Storrs, CT (E-mail: [MallaR@engr.uconn.edu](mailto:MallaR@engr.uconn.edu))  
**Pradeep Khanal** (*Vice President, CAN-USA*)  
Intel Corp., Santa Clara, CA (E-mail: [PradeepKhanal@gmail.com](mailto:PradeepKhanal@gmail.com))

### Local Committee Chair

**Achyut Shrestha** (*Member, Board of Directors, ASNEng*)  
Phoenix, AZ (E-mail: [LocalCommittee@ASNEng.org](mailto:LocalCommittee@ASNEng.org))

### Committees:

#### Steering Committee

Baikuntha Adhikari  
Rabin Bhattarai, Ph.D.  
Jagannath Ghimire, P.E.  
Samana Ghimire  
Pujan Joshi  
Pradeep Khanal (*Technical Co-Chair*)  
Ramesh B. Malla, Ph.D. (*Technical Co-Chair*)  
Sagan Onta, P.E.  
Amod Pokhrel, Ph.D. (*General Co-Chair*)  
Bineet Sharma  
Achyut Shrestha (*Local Chair*)  
Rajendra Shrestha, Ph.D. (*General Co-Chair*)  
Janka Thapa, P.E.  
Binod Tiwari, Ph.D., P.E.

#### Technical Committee

Ambika Adhikari, Dr. Des., AICP  
Ananta Baidya, P.E.  
Rabin Bhattarai, Ph.D.  
Laxman Devkota, Ph.D.  
Thakur Dhakal, P.E.  
Niresh Dhungana  
Sanjaya Gajurel, Ph.D.  
Jagannath Ghimire, P.E.  
Samana Ghimire  
Pujan Joshi  
Upendra Karna, D. Eng., P.E.  
Kanhaiya Kayastha, P.E., S.E.  
Pradeep Khanal (*Technical Co-Chair*)  
Sudip Koirala, Ph.D.  
Ramesh B. Malla, Ph.D. (*Technical Co-Chair*)  
Sagar Onta, P.E.  
Amod Pokhrel, Ph.D. (*General Co-Chair*)  
Murari Pradhan, Ph.D., P.E.

#### Technical Committee (Cont'd..)

Bineet Sharma  
Achyut Shrestha (*Local Committee Chair*)  
Rajendra Shrestha, Ph.D. (*General Co-Chair*)  
Janak Thapa, P.E.  
Binod Tiwari, Ph.D., P.E.

#### Local Committee

Lekhnath Acharya  
Ambika Adhikari, Dr. Des., AICP  
Baikuntha Adhikari  
Mithun Bista  
Satya Chataut, P.E.  
Nalini Chhetri, Ph.D.  
Netra Chhetri, Ph.D.  
Laxman Devkota, Ph.D.  
Niresh Dhungana  
Dilli Gurung  
Shashi Gyawali  
Bharat Kandel, P.E.  
Pradeep Karna, P.E.  
Sudip Koirala, Ph.D.  
Bishu Malla  
Sameer Pandey, P.E.  
Murari Pradhan, Ph.D., P.E.  
Arjun Poudel  
Surya Poudel, Ph.D. Candidate  
Sajib Prajapati  
Upendra Puri  
Rohini Sharma, SME Distinguished  
Achyut Shrestha (*Chair*)  
Gajendra Shrestha, P.E.  
Milan Shrestha, Ph.D.  
Samridhi Shrestha, Ph.D.  
Yogendra Upreti  
Bikash Vaidya

---

*American Society of Nepalese Engineers (ASNEngr) - a non-profit organization established in September 2007 with IRS 501(c)(3) tax exempt status – aims at providing a common platform for people of Nepalese background and their friends, in engineering and closely related scientific and technical areas to come together, exchange ideas, and support each other for their and the larger society’s common good and benefits. It operates for engineering, scientific and technological research and educational purposes. The Society also strives at promoting engineering, scientific, and technological advancement in Nepal. The Membership application form and detailed information on ASNEngr and updates on its recent activities can be found at <http://www.ASNEngr.org>.*

*Computer Association of Nepal-USA (CAN-USA) is an American organization dedicated to the professional development of its members and technological progress of Nepal. It is a tax exempt 501(c)(3) non-profit organization with members throughout the United States. The organization continues to utilize the creativity and talent of its members and the broader American community to develop technology-rich solutions that address some of Nepal's challenges. Please visit <http://www.can-usa.org/> for more information.*

### **Conference Websites**

*For more information on the conference, please visit the following websites:  
[www.ASNEngr.org](http://www.ASNEngr.org) (“Annual Conferences and Meetings”) and  
[www.CAN-USA.org](http://www.CAN-USA.org) (“2014 Joint Conference”)*

\*\*\*\*\*