

## Application form

1. Full name (in block letters): \_\_\_\_\_
2. Designation: \_\_\_\_\_
3. Present employer and address: \_\_\_\_\_
4. Address to which reply should be sent (in block letters) (Give telegraphic, fax, e-mail address and cell no.): \_\_\_\_\_
5. Permanent address: \_\_\_\_\_
6. Date of birth: \_\_\_\_\_
7. Sex: Male/Female
8. Teaching /research /professional experience (mention post held) during last 5 years and number of publications: \_\_\_\_\_
9. Mention if you have participate in any Research Seminar, Summer/Winter School/ Short Course, etc. during the previous year under ICAR / Other Organizations: \_\_\_\_\_
10. IPO / D.D No. : \_\_\_\_\_ dated: \_\_\_\_\_ of Rs. 50/- (Non Refundable as registration fee)
11. Academic record

Examination passed	Subject Main/Subsidiary	Year of passing	Class/ranks /distinctions	University or institution	Other information

Place: \_\_\_\_\_ Signature of the applicant

12. Recommendations of forwarding institute:

Date: \_\_\_\_\_ Signature

### CERTIFICATE

This is to certify that the information furnished by the applicant was checked with office record and was found correct.

Signature and designation of the sponsoring authority

**Note:** If more copies are required, typed copies may be made locally for use of applicants

## About Junagadh

Junagadh is one of the Gujarat's most historical city. A wide range of monuments from the 3<sup>rd</sup> century BC edicts of Emperor Ashoka to the 19<sup>th</sup> and 20<sup>th</sup> century buildings commissioned by the Nawabs stand testimony to Junagadh's illustrious past likewise hills have Buddhist and Jain caves, Uparkot, Bahauddin college, Maqbara, etc. A short drive to the east of Junagadh, is MT Girnar which has a hilltop temple complex. The 12<sup>th</sup> century Jain temples on the hill have exquisite carving. Junagadh is also important for being the connecting spot for the famous Gir National Park, Somnath temple and Dwarka.



## Correspondence

### Course Director

**Dr. B. A. Golakiya**

Professor and Head  
Department of Biotechnology  
Junagadh Agricultural University  
Junagadh, Gujarat

### Course Coordinator

**Dr. Rukam S. Tomar**

Associate Professor  
Department of Biotechnology  
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### Important Dates

Last date for receipt of applications:	<b>20.07.2017</b>
Intimation to selected candidates:	<b>01.08.2017</b>
Confirmation to selected candidates:	<b>04.08.2017</b>

## INFORMATION BROCHURE

### WINTER SCHOOL

On

### “Genomic, Proteomic and Metabolomic Application in Crop Improvement”

4<sup>th</sup> to 24<sup>th</sup> September, 2017



Sponsored by  
Indian Council of Agricultural Research



Organized by  
Department of Biotechnology  
Junagadh Agricultural University  
Junagadh-362 001, Gujarat

## Rationale of the course

In view of ever-growing population and decreasing natural resources, there is need to enhance food production that can possibly be achieved by improving upon qualitative and quantitative traits of crop plants by adopting new analytical tools and technologies. During the last decade or so rapid progress has been made in plant biology, especially with the introduction of high throughput 'omics' technologies. The three main omics technologies – genomics, proteomics and metabolomics involve quantification and characterization of genome, proteome and metabolome, respectively, with extremely rapid, miniaturized and automated methods. These technologies are aimed at unraveling the overall expression of genes, proteins and metabolites in a functionally relevant context, and provide insights into the molecular basis of various fundamental processes involved in growth and development of plants and their environment. Advances in plant genomics research have opened up new perspectives and opportunities for improving crop plants and their productivity. Gene discovery and gene expression profiling technologies are creating an unprecedented opportunity for plant breeders who can now apply molecular markers to assess and enhance diversity in their germplasm collections, to introgress valuable traits from new sources and identify genes that control key traits. The genomics technologies have been found useful in deciphering the multigenicity of biotic and abiotic plant stress responses through genome sequences, stress specific cell and tissue transcript, protein and metabolite profiles and their dynamic changes, protein interactions and mutant screens. As a consequence of these use of omics methods will generate ample amount of raw data which can be stored, processed and analyzed with the help of advanced bioinformatics tools.

## Course contents

The winter school will provide an introduction to the three core omics technologies, relevant methodologies and applications with emphasis on crop improvement strategies. The course will content lectures on various principles and application of omics in crop improvement. The candidates will be provided hand on training on some advanced instruments like Next Generation Sequencer, RT-PCR, 2D HPLC, GCMS, LCMS, GCQToF, LCQToF, 2D Gel Electrophoresis, etc.

The winter school will provide hands on training on following aspects -

- Genomics and Transcriptomics** :
- Next Generation Sequencer for genomic and transcriptome sequencing
  - Real Time PCR
  - Bioinformatics tools for plant genome Analysis; Genome annotation and Genome assembly; Transcriptome Analysis; etc
- Proteomics** :
- 2D gels Electrophoresis
  - Spot picking and in-gel digestion
  - Off-line fractionation techniques
  - GC QToF & LCQToF
- Metabolomics** :
- Accelerated Solvent Extractor
  - 2D HPLC
  - GCMS & LCMS

## General information

### Who can participate?

The programme is open to scientists/teachers/subject matter specialists/professionals of ICAR Institutes/SAU's/KVK's involved in research and development programmes. A maximum of 25 participants will be selected based on their experience and area of working. One to two participants may be sponsored from each Institute/Organization.

### Eligibility

The candidate must hold Master's degree in Agriculture and Basic science. Participants must be working not below the rank of Assistant Professor/Scientist/SMS or equivalent in the related theme of the winter school and concerned subject.

### How to Apply

The applicants desirous of participation may send their online nomination for the training through CBP portal site (<http://iasri.res.in/cbp>) as per the procedure mentioned. The hard copy of the successfully uploaded application must be sent to the Course Director after approval of the competent authority along with a postal order/ DD of Rs 50/- (Non-refundable). The amount will be drawn in favour of "JAU Fund Account", payable at State Bank of India, Junagadh. In case of any difficulty in applying online using CBP portal, the participants may also send their duly filled application form in the given format after getting necessary approval from their competent authority of the

organization to the Course Director on the address given in the brochure.

**Note:** The last date for receiving the nomination is 20<sup>th</sup> July, 2017. The advance scanned copy of the nomination may be sent by e-mail. The list of selected participants will be displayed in JAU website [www.jau.in](http://www.jau.in) and will also be conveyed to the applicants only through email. In case of any query please contact Course Director or Course Coordinators. Only 25 participants shall be selected for the course

### Duration

The course is scheduled from 4<sup>th</sup> -24<sup>th</sup> September, 2017 (both days inclusive) participants are expected to arrive at the JAU, Junagadh, by the morning of September 4, 2017.

### Travel, Boarding and Lodging

Participants will be paid travel fair to and fro by shortest route from their institutions to JAU, Junagadh and back (Maximum class of 2AC) train fare only or bus fare as the case may be as per ICAR rules. Participants are required to produce original rail and bus tickets for reimbursing the travel expenditure. No DA will be provided during entire period of training. Free boarding and lodging will be provided to the participants in the institute guest house. The participants should abide by the rules and the regulations of the institute's guest house.

### Venue

The winter school will be held at Department of Biotechnology, Junagadh Agricultural University, Junagadh (Gujarat). The lectures will be conducted in the conference hall of department, while practical's and demonstration on instrumentation will be done at Central Laboratory.

### How to reach JAU

Junagadh is well connected by Rail and Road. It is 100 km from Rajkot and 350 km from Ahmedabad. Auto rickshaw can be avail from Railway station/Bus station to the JAU campus.

### Weather

The climate at Junagadh during September is pleasant and duration of the monsoon season. There are frequent rainfalls accompanied with thunderstorms. The maximum and minimum temperature is around 36°C and 21 °C, respectively.