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The DSU Talent Search 2018

29th, 30th November & 1st December 2018

Presented by Dayananda Sagar University

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Dayananda Sagar University (DSU) has chosen an unusual path to transform India into a leader in innovation. Equipped with state-of-the-art laboratories, set up by global corporates to foster innovation, **DSU** is now taking the next step of identifying and rewarding the country's talented youth by:

- Nurturing talent in an individual or a group of students
- Enabling students with new skills that they can apply in a real-world situation. It provides a one-of-its-kind opportunity where students from Class 9-12 from schools across India are invited to get trained:
 - a) By mentors in various laboratories set up by industry partners of DSU on the campus or
 - b) By the DSU faculty who would make available a suite of ideas that students could choose from (given elsewhere).

On completion of the training, students will apply their newly-acquired skills and expertise to develop a product or service that will reach the prototype stage and proof of concept (POC) level. Students will be empowered to work on a design and demonstrate their skills through working prototypes, 3D models, videos, oral and poster presentations.

Open to:

Juniors: Class 9 and 10

Seniors: Class 11 and 12

Training: 29th, 30th November & 1st December 2018

Talent Demos and Project Exhibition: 1st December 2018 - this would be the day for students under various categories to showcase their projects in the DSU campus.

Venue: Dayananda Sagar University, Innovation Campus, Kudlu Gate Campus, Hosur Road, Bengaluru - 560068.

The Organising Committee

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Prof.Capt. A Nagaraj Subbarao
Dean - E.MBA

Mr.Hemanth Uppala
HoD - Computer Applications

Ms. Anitha Ramamlingam
COE-DSU

EVENT 1

TITLE: Artificial Intelligence Application in Real World

MENTORS: Dr Shaila, Dr Vasanthi Kumari, Prof. Nidhi Deepash

INTRODUCTION

Students will be introduced to Artificial Intelligence (AI), its fundamental concepts, and will be briefed about different AI techniques.

On completion of this event, students will be exposed to the trending technology of AI. They will be connected to the most effective and tangible reform movement in the education domain and be able to up-skill to the latest in technology.

Students will be trained to create the following apps:

1. Face Recognition App
2. Music Recognition App
3. Chatbots for Education

Activities:

Day 1: Theoretical AI

Day 2: Practical training for app development and chatbots

Day 3: Students will develop AI chatbots for education

Contact:

Dr Shaila S.G.- 8884560635, shaila-cse@dsu.edu.in

EVENT 2:

TITLE: Application of blockchain technology in the areas of healthcare, banking & finance and supply chain management

MENTORS: Prof Mahesh Kumar K. M., Prof Manoj Kumar S., Prof Shivakumar C., Prof Shwetha G. S., Prof Suha Aimen

INTRODUCTION

Blockchain is a secure transaction ledger database that is shared by all parties participating in an established, distributed network of computers. It is a database technology, a distributed ledger that maintains an ever growing list of data records that are decentralized and impossible to tamper .

This event will enable students to learn and appreciate the potential of blockchain technology and its application in solving the trust issues in peer to peer networks and distributed networks like healthcare, banking & finance and supply chain management.

Hands-on session and poster presentation will help motivate students to actively learn and apply this new knowledge to solve problems.

Activities:

Day 1: Introduction to Blockchain, application of blockchain technology in area of health care, banking & finance and supply chain management.

Day 2: Hands-on blockchain (Hyperledger Fabric and Composer), prototyping and/or poster preparation

Day 3: Demo of application using Hyperledger Fabric and Composer and/or Poster presentation

Contact: Prof. Mahesh Kumar K. M.

Ph:9620447254 email: maheshkumar-cse@dsu.edu.in

EVENT 3:

TITLE: Training on Computer Graphics using OpenGL

MENTORS: Dr Reeja S R, Dr. B.Venkateswarlu, Prof.CV S N Reddy, Prof. Aiswariya Milan K

INTRODUCTION:

Today, computer graphics is a central part of our lives, in movies, games, computer-aided design, virtual simulators, visualization and even imaging products and cameras. This workshop teaches the basics of computer graphics that apply to all of these domains. OpenGL stands for Open Graphics Library and it is one of the most popular 3D graphics APIs. OpenGL is a multi-platform and cross-language API with a primary objective of rendering 2D and 3D computer graphics. OpenGL is an interface that your application can use to access and control the graphics subsystem of the device on which it runs. In other words, it is an abstraction layer between your application/game and the underlying graphics subsystem.

- Elementary knowledge of C programming will be useful
- On completion of this WORKSHOP the student will learn about Basics of OpenGL with standard libraries and terminologies
- Understand the working of OpenGL platform and Apply OpenGL API for programming
- Participants will also will be able to write programs for 2D animations and drawing

Activities:

Day-1: Introduction to Computer Graphics

Day-2: Introduce Various Libraries and Terminologies

Day-3: Project and poster presentation

MAXIMUM NUMBER OF PARTICIPANTS - 25

Contact: Dr. Reeja S. R | Ph: 8147612121, reeja-cse@dsu.edu.in

EVENT 4 :

TITLE: Ideathon- Poster Presentation

Mentors: Prof. Mrs. Kanmani B. S., Prof. Mrs. Mukti Chaturvedi

Topics:

1. Waste Segregation and Re-cycling

Take a look at your surroundings which have various types of wastes such as wet waste, dry waste and e-waste. Wet waste recycling provide natural fertilizers. Dry waste recycling leads to extraction of petroleum products. E-waste recycling unearths many precious metals such as gold, silver, copper and palladium. Look at how all these material could be segregated and processed effectively. It could present a business opportunity and one could invest in it when put to multiple uses.

What are your thoughts on this?

Any new business ideas?

2. Innovations in Power Generation System

With tremendous growth in the national population, generation and distribution of energy from the conventional power generating systems is a great challenge to the nation. Generation of energy from various renewable resources with renewable energy projects at the national as well as domestic levels contribute to the development of not just the rural and remote areas but also for the development of the nation in winning the challenge. What is your take on this?

3. Developments in Communication System

We are seeing tremendous strides in the area of communication systems from the time when we had the good old telegrams to the latest satellite communication system. Every stage of development has its advantages and disadvantages. Overcoming those disadvantages necessitate new innovation. What is your analysis? Can you think of any innovative idea?

Mode of presentation:

Oral presentation with A2 size poster: Speakers should introduce the topic, speak on the innovation / solution aimed to be achieved and supported with experiments/analysis.

Poster in the recommended size is to be prepared on the spot, including the following:

- Title – author’s name along with institutional description
- Functional block diagram (from source to end result)
- Deliverables and outcomes
- Conclusion

Contact: Kanmani B. S.

Ph: 9900710775 | E mail: Kanmani-ece@dsu.edu.in

EVENT 5:

TITLE: Eco Hackathon for Sustainable Habitat

Mentors: Dr. M.S.Rajagopal, Dr. Vinayak B. Hemadri, Dr. Mritunjayswamy K. M., Prof Ms. Shubha Javagal

INTRODUCTION

Eco Hackathon for Sustainable Habitat is an attempt to tap the ideas of young talent to find solutions to complex environmental pollution problems and propose a healthy habitat for future generations. The event consists of a number of themes (domains) upon which attention is focused to find a feasible solution.

Major themes of the event are as follows:

- Paving Path to Greener Roads
- Efficient Energy Management Systems
- Green Power and Reducing Carbon Foot Prints
- Smart Agriculture
- Green Buildings / Energy Efficient Buildings
- Eco-Socio Feasibility of the Solution

Activities:

Day 1: Registration, Orientation, Visit to Hydraulic Machines Lab

Day 2: Technical talk by in-house or external expert, followed by presentation by students in the post noon session

Day 3: i) Forum discussion ii) Technical quiz

Students will have to present their ideas based on the given domains and will be judged on:

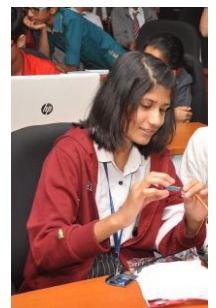
- Definition and statement of problem
- Feasibility of Solution/ Methodology
- Novelty Involved
- Technical/ Scientific theories involved to prove their model/ approach
- Self-sustainability of the idea if developed into product

Contact:

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vinayak-me@dsu.edu.in

Dr. Mritunjayswamy K. M. +91 9448013081



EVENT 6:

Electronic Circuit Debugging -Training and Project Presentation

MENTORS: Prof. Manasa K. R., Prof. Kokila S.

INTRODUCTION:

Electronics as the name suggests deals mainly with Analog Signals and Digital signal generation, processing and analyzing. Communication is transmission of signal from one place to another in various media. Demonstration and hands-on experience will be given in Analog Electronics, Digital Electronics and Communication Labs.

Activities:

The main objective of this plan is to provide overall view of Electronics and Communication through designing of simple projects. Tutorial classes will be taken on Analog parameter processing, measurement, digital circuits and communication system elements and process. Demonstration of the devices to be utilized in the development of projects will be carried out .

As an outcome of the workshop, students will be able to design an analog circuit based project, learn some digital circuit elements and design a project based on communication.

Students can come in batches of 4 , maximum 12 batches.

Day 1 & 2 Tutorial and instruction

DAY 3 Project completion

Contact:

Prof. Manasa K. R. | 7204670180 | manasa-ece@dsu.edu.in

EVENT 7:

TITLE: Implementation of Insomnia Bot

MENTORS: Prof. C. V. S. N. Reddy, Dr. Reeja S. R., Dr. B. Venkateswarlu, Prof. Aiswariya Milan K.

INTRODUCTION:

As the world is advancing in technology through digital revolution, mental work is becoming more than physical work. New generation is facing issues like tension, stress, anxiety because of peer pressure. Hence sleeping disorders are mounting.

A chatbot is a software that responds to your messages using natural language and relies on artificial intelligence to determine what you mean and deliver a tailored reply. As we head toward computer-based systems that can learn and adapt for themselves, chatbots are becoming ever more common.

The chatbot is useful to solve sleeping disorders and make people to get sound sleep.

Activities :

- Explanation to AI technology, chatbot technology and analysis of requirements
- Exposure to Python Language
- Implementation Coding and Testing of chatbot
- Deployment of chatbot

MAXIMUM NUMBER OF PARTICIPANTS - 25 STUDENTS

Contact:

Dr. B. Venkateswarlu | bonduvenkat-cse@dsu.edu.in

EVENT 8:

Internet of Things in day-to-day activities

Mentors :

Dr. Rajesh T.M., Dr. Mallanagouda Patil, Dr. Tamanna Jena, Prof. Kavyashree Dalawai, Prof. Neeta M. S.

IoT: The Internet of Things (IoT) is a network of things which are connected to the Internet. It refers to all those objects or devices of everyday life that are connected to the Internet and that have some kind of intelligence. Appliances that communicate with the user are biomedical control systems, trends in consumer use, automobile, smart buildings, cities, e-mobility and smart grids, digital factory, e-health. These things include IoT devices and IoT-enabled physical assets. The 'thing' in IoT could be a person with a heart monitor or an automobile with built-in-sensors, i.e. objects that have been assigned an IP address and have the ability to collect and transfer data over a network without manual assistance or intervention.

Activities :

Day 1: Presentation, Explanation on IoT, Arduino Board, Sensors

Day 2 : Hands-on training session

Day 3: Students will do projects on their own idea

Students have to come up with their own idea and perform the mini project using kits. Students will be judged upon their creative and innovative idea.

Maximum number of participants - 33 Students (11 batches)

Contact: Dr. Rajesh T M, 9591664668, rajesh-cse@dsu.edu.in



EVENT 9:

TITLE: Science Quiz (November 30th 2018)

MENTORS: Dr. Yogesh Kallegowda, Dr. Chandrashekar Vaidyanathan, Dr. Ashoka, Dr. Sunanda Saha, Prof. Subhadra Misra

INTRODUCTION:

Test your knowledge of science facts and applications of scientific principles by taking our quiz challenge based on the syllabus of class XI and Class XII (Physics, Mathematics and Chemistry).

- a) Mathematics: Complex Numbers and Quadratic Equations, Matrices and Determinants, Limits, Continuity and Differentiability, Integral Calculus, Trigonometry.
- b) Physics: Units and Measurements, Laws of Motion, Waves and Oscillations, Electrostatics, Current Electricity, Optics.
- c) Chemistry : Atomic Structure, Electrochemistry, Organic Chemistry, Chemical Bonding, Chemical Energetics

Activities:

- Preliminary Round (Duration: 60 minutes)
- Final Round (Duration: 30 minutes)
- Both Preliminary and Final Round will have the following sub-rounds:
- Subject Question Round, Audio Visual Round, Rapid Fire Round

Contact: Dr. Yogesh Kallegowda, 8762040113, yogeshphy@dsu.edu.in
Dr. Ashoka S, 9620213754, ashok-chem@dsu.edu.in
Dr. Sunanda Saha, 8971939565, sunanda-math@dsu.edu.in



EVENT 10:

TITLE: Hands on Training on Separation of Organic Components (TLC & Column Chromatography)

MENTOR: Dr. V. Srinivasa Murthy

INTRODUCTION:

Chromatography is a technique employed for the separation of organic components in a mixture using suitable mobile phase. Usually before going for separation by using column, one has to identify the number of components present in it by a technique called thin layer chromatography (TLC). This is the preliminary identification for the completion of the reaction or to identify the number of components. The concept of chromatography has been introduced in higher education because of its prime requirement in pharma, food, agricultural industries. The main objective is to teach the basic principles of TLC and its utilization in separating the organic components. The following are required to perform the experiment:

1. Knowledge on polarity of the solvent
2. Type of stationary phase utilized in the column, chromatography

Once TLC is complete for the expected activity, it is then purified by column chromatography to obtain individual components to examine their importance in various chemical activities. The techniques employed in pharma industry, agrochemicals, petrochemical refineries for the purification of organic compounds will be inculcated in a simplified manner and in shorter duration.

On completion of this workshop the student will have knowledge about staining reagents utilized to identify the functionality present in the moiety exploring its uniqueness in the molecule. They will also know the polarity of the solvent chosen and the techniques utilized to separate the organic mixture by column chromatography.

Number of Participants:

It is a team event and three to four students from Class XI/XII would participate as a team.

Activities:

First two days would involve training and third day will be participation/competition for the separation of compounds from the given mixture.

Contact:

Dr. V. Srinivasa Murthy Email-id: vsmurthy-chem@dsu.edu.in
Contact No: 9844604892

EVENT 11:

TITLE: Hands on workshop for Satellite Making

MENTORS: Dr. Ramakumar, Ms. Sudha Deepthi and Ms. Nikitha (External Agency- SSERD)

INTRODUCTION

This will be a three day workshop where students will be trained on basics of satellites and sensors and then guided to make their own working model of satellite and test it.

Theory session on working principles, sensors, subsystems of satellites, types and uses, designing the structure, calculation, material selection, model making, recovery system, power source, coding, deploying and analysis.

10 members will form a group and make a working model of a satellite.

On completion of this WORKSHOP students will be able to:

- Understand basics of satellites, sensors, materials, basics of coding and testing
- Developing team spirit
- Creating interest in space technologies

Activities :

1. 1.5 days of theory
2. 1.5 days for model making and testing

Contact:

- a. Dr. Ramakumar, Chairman, Aerospace Engineering
9448091238
- b. Ms. Sudha Deepthi, Innovation Labs 9491887255,
sudha-bosch@dsu.edu.in
- c. Ms. Nikitha Co-Founder & CEO – SSERD 8861963216

Event 12:

TITLE: Development & fabrication of sheet metal product using Autocad Modeling

MENTORS:

Dr. Saravana Bavan, Mr. M.S. Vinay and Prof. L. C. Shashidhar

INTRODUCTION

Sheet metal work has its own significance in the engineering domain. Many products, which fulfill household needs, decoration work and various engineering articles, are produced from sheet metals. The indispensable engineering articles made of sheet metal find application in agriculture, building construction, house hold, offices, laboratories and shop equipment, heating and air conditioning, transportation, decorative work, toys and many such areas. Fabrication of metal structures involve four essential stages: measuring and marking out, preparation of the material for fabrication, forming processes and assembly of the materials.

Tools such as measuring tools, marking tools, cutting tools, forming tools and joining tools will be provided to students for making a design project. Demonstration and hands-on-experience in metal shaping skills will be given to students.

Activities Planned for the project :

The prime objective of this work is to incorporate the effectiveness of learning on various basic fabrication skills through a Design Project. Demonstration on usage of tools will be given to students during the event. The activity includes tutorial classes on sheet metal and AUTO CAD SOFTWARE with hands on experience.

There can be 4 students per batch and maximum of 10 batches.

On completion of this WORKSHOP students will be able to:

- Mark out and form projects in sheet metal work
- Produce finished sheet metal projects involving various production processes
- Know about regulations and safe working practices in the fabrication industry
- Know the processes used to mark out and prepare materials to produce fabricated structures
- Know how materials are formed and assembled to produce fabricated structures.

Activities:

The 3-day events are an intense and focused experience in which students learn traditional metal shaping techniques. First day will be a tutorial class on AUTO CAD Software tool. Second day will be hands on experience on sheet metal. Third day will be students' competition to design any component of day to day use.

Contact:

- a. Dr. Saravana Bavan | saranbav-me@dsu.edu.in
- b. Prof. M. S. Vinay | vinay-me@dsu.edu.in
- c. Prof. L. C. Shashidhar | shashidhar-me@dsu.edu.in



EVENT 13:

TITLE: Technology enabled devices for Smart HealthCare (AI+IoT)

MENTORS: Prof. Rajanikanth Kashi, Prof. Rashmi S., Prof. Rashmi Mothkur, Prof. Bhargavi Mokashi

INTRODUCTION

The powerful combination of AI and IoT technology is helping companies avoid unplanned downtime, increase operating efficiency, enable new products and services, and enhance risk management. Smart technology is certainly something that will be the key to the optimal operating of our future society, especially when it comes to healthcare.

On completion of this WORKSHOP the student will be better armed to answer questions like:

How will the emerging potential of Smart Health Technology evolve in the near future?

What is the current state? What are the potential opportunities and possible risks?

Focus will be centered on the following sub areas:

- Elderly care
- Intelligent remote patient monitoring
- Assistive device

Students will be given training based on which they will present their ideas through poster presentation based on following themes:

- I. Wearable Technologies
- II. Remote Health Monitoring for Elderly People
- III. Medical Equipment Traceability
- IV. Chronic Medical Conditions
- V. Security and Privacy in Electronic Health Records

Activities:

Day 1: Introduction to usage of Smart Technology in Healthcare

Day 2: Sample Projects to demonstrate the usage of Smart Technology in Healthcare and Brainstorming Session

Day 3: Poster Presentation and Evaluation

Contact:

Prof.Rashmi S: 98456849624 | rashmineha.s@gmail.com

Prof.Rashmi Mothkur: 9916091626, |

rashmimothkur-cse@dsu.edu.in

EVENT 14:

TITLE: Hands-on Robotics Workshop

MENTORS:

1. Dr. P. Vivekananda Shanmuganathan, Professor of Mechanical Engineering

2. Ms. Sudha Deepthi, BOSCH Lab

3. Udayaravitejaswi S (M.Tech. Student)

4. Nagaraj 5. Vishwas 6. Thangjam 7. Hrishikesh (B.Tech. Students of Robotics)

INTRODUCTION :

The Robotics Workshop is conceived in such a way as to give basic hands-on introduction to Robotics for school students. It is proposed to introduce free and affordable tools for the workshop so that the participants can continue working on their work on conceptual robotics and low-cost prototyping of their concept robots.

Activities:

The workshop is proposed to be conducted in four levels. Activities for the three days will be split based on these levels and on the final day, students will come up with their own conceptual robot models using CAD software.

Level 1: Modeling and Motion Simulation using AutoDesk Fusion 360- The free cloud-based Computer-Aided Design (CAD) application and AutoDesk Fusion 360 will be used for building CAD models of industrial and other popular robot configurations. The Participants can play around with the models for graphical simulation of robot motions. The participants will be encouraged to prepare posters and videos of their work.

Level 2: Prototyping - The participants will have to make physical prototypes of robots using card boards, thus visualizing industrial robots.

Level 3: 3D Printing of Robot Models - 3D printing results in prototypes that are sturdier and more long-lasting than the ones made by card-boards. 3D printing is a layer-by-layer development of a physical object from the respective CAD models. It is a slow process requiring special plastic-based material as the raw material.

3D printing requires a special machine called 3D Printer. participants will be given a demo on how 3D printing can be used for making robots or their components.

Level 4: Control- Development of functional robots with electronic control is the aim. Low cost servo motors and affordable controller boards will be used for robot motion and control. Mechanical structure of the robot will be made using cardboards and other sturdier material such as plywood or readily available metallic links.

Contact:

Dr P. Vivekananda Shanmuganathan

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EVENT 15

TITLE: Programming in C

MENTORS: Dr. PRAMOD T C, Prof. RANJINI K,
 Prof. SHARVARI J N

INTRODUCTION:

“Programming is a skill best acquired by practice and example rather than from books” – Alan Turing.

So here is an exciting opportunity for all the young minds to learn the basics of programming in a language like C and explore its features and usage. The future of coding requires the ability to think and make problem solving easier.

Individual attention will be given to the students on how to go about programming supported by hands on experience in the lab with practical sessions.

Activities:

DAY 1: Introduction to C

DAY 2: Hands on practice sessions

DAY 3: Quiz on programming in C

Contact:

Dr. PRAMOD T C

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EVENT 16

TITLE: Videathon – Video Presentation (Idea - Product - Startup)

Do you have an idea that can be converted into a product? Are you interested in your own startup?

As part of Videathon, the student will be given assistance to model their idea to a product which could be converted to a startup based on the feasibility.

Students should make a short video explaining their idea/ model. We would also assist in Video graphing an idea.

Duration of the Video: 5 minutes

Category: Open Category

Theme: Any Relevant Theme Product

Day 1 & 2: Modelling and Videography Training session:

Day 3: Video Presentation

Only video accepted, other forms are not acceptable

Contact:

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pushpamala-ece@dsu.edu.in

EVENT 17

Title: Website Development

Mentor: Dr. Jasma Balasangameshwara, Dr. Pramod T. C.

Overview:

In the workshop, participants will learn to build fully functional static websites using open-source model-view-controller framework. This workshop is meant for all those who would like to understand the entire process of setting up a well-designed website.

There is no prerequisite to start learning website development. In front-end development, participants will learn basics of Hyper-Text Markup Language (HTML), Cascading Style Sheets (CSS) and invoking Javascript libraries.

The workshop is for 9th & 10th grade students. Number of registrations is limited to 30

Activities:

Day 1

1. Learn to create HTML5 web pages
2. Learn about Model-View-Controller (MVC) Architecture & Bootstrap Framework
3. Build a school website
4. Deploy the Website on Joomla Platform
5. Install & Use Customization Extensions

Day 2

Customize the website & add features to make it fully functional school website

Day 3

Competition- the participants should demonstrate a landing page and at least three inter-linked web pages. Responsive web design & user-friendly navigation will be the parameters for judging the winners.

Contact:

Dr. Jasma Balasangameshwara

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EVENT 18:

TITLE: Energy Challenge for safe and sustainable world

MENTORS: Dr. Yogesh Kalegowda and Dr. Ashoka S.

INTRODUCTION: India is striving to reduce our greenhouse gas emissions as part of our Climate Action Plan and commitment to become carbon neutral by 2030. In this context, creating awareness among young brains and encourage them to involve in carbon free energy production and usage research is crucial towards development of the country. Making battery cells will be a part of this project.

The aim of the DTS 2018 Energy Challenge is to encourage students to come up with original and innovative ideas that could potentially deliver solutions to the energy challenge, focusing on four themes:

1. Production of energy from non-traditional sources
2. Energy storage technology
3. CO₂ reduction in transportation, power generation and building construction
4. Increasing energy efficiency and conservation – in domestic or commercial usage (green building design)
 - a) Prototype modeling of energy production
 - b) Poster presentation

Contact:

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Dr. Ashoka S, 9620213754, ashok-chem@dsu.edu.in

EVENT 19:

TITLE: Fun With Physics

MENTOR: Dr. Baishali G.

INTRODUCTION:

Some students find it difficult to grasp the concepts and others start fearing the subject. Often, the beauty of Physics is lost. The “Fun With Physics” event is designed for young students to get a feel of the beauty of Physics through some simple experiments and fun projects.

MAIN HIGHLIGHT of this event would be making paper circuits using graphite.

In this event, students from class 9 and 10 will participate on making projects involving simple principles of Physics. The total number of participants is limited to 20.

Activities:

Day 1: Students will make some fun projects hands-on. Mentor will help them to execute the projects.

Day2: Students will come up with their own creative projects based on the training they received in the first day and discuss their ideas with the mentor and make the projects ready.

They will prepare the posters to be displayed along with their projects in the exhibition .

Day3: Students will exhibit their projects in the exhibition. They will use the posters for explaining the concepts to the audience.

Contact:

Dr. Baishali | Ph.9663367927 | baishali-phy@dsu.edu.in



EVENT 20:

TITLE: 3D printing and fabrication of electromechanical devices

MENTORS: Dr.Viswanathan R , Dr.Kamalbabu P. , Mr. Vinayaka (Autodesk lab)

INTRODUCTION

3D Printing is an Additive Manufacturing technique that creates a physical object from a virtual 3D CAD model by depositing successive layers of material. They work like the traditional inkjet printers, but instead of ink, a 3D printer deposits desired material to manufacture an object from its digital format. 3D printing and rapid prototyping, in general, are widely claimed to have revolutionized not only the manufacturing industry but also many other walks of life like medicine, aerospace and automotive industry. This program on 3D Printing helps the participants understand the design, functioning and operation of a basic 3D Printer.

Activities:

Day 1: Introduction to 3D printing, Rapid Prototyping, Arduino electronic controller, CAD, G codes, Materials used for printing, Fabrication of XY plotter

Day 2: 3D printing of different models by participants

Day 3: Exhibition of 3D printed models and XY plotter

For details, contact:

Dr. Viswanathan R.(viswanathan-me@dsu.edu.in),
9600550233

EVENT 21 :

TITLE: Elocution on the following topics related to current affairs

a) #MeToo: Promises and Pitfalls

What started as a campaign by victims venting their experiences of sexual harassment in Hollywood, the #MeToo movement has spread across select cities in India! It has since named and shamed those holding power. And consumed the jobs of several of those accused. Some however, warn that the movement could easily spiral out of control if allegations are found to be untrue or remain unproven in a court of law.

Yet, several women from different walks of life, ranging from films to politics, continue to believe that they now have a force more powerful and empowering than any measure from the past has achieved as a tool of gender justice.

So what promise does the movement hold? And what could be its pitfalls?

b) SC and Religious Practices

From Shah Bano to Sabarimala, Haji Ali Dargah to Shani Shignapur, the Honourble Supreme Court has cut across tradition and age-old practices that seemed to undermine the Fundamental Rights of citizens.

But there are also some who believe that the Supreme Court must steer clear of religious traditions and beliefs and must not impose rationality in matters of faith.

So moving ahead, how should we reconcile tradition and reform? Can they be reconciled?

c) The Purpose of a University

What are universities for? While some may believe that universities are required to produce trained manpower to serve the market and industry, others think that their primary goal should be to produce new knowledge based on evidence that deepens our understanding of the universe.

So what are universities for?

Contact:

1. Prof. Rakesh S Katarey – Dean – CJMC, DSU 9663063388 ,
rakeshfilm@yahoo.com

2. Prof: Murali Margassery – CJMC, DSU 9731036853 ,
muralimargassery@hotmail.com



EVENT 22:

TITLE:

- 1) 3D Design of a product using Autodesk Fusion 360
- 2) Design of House / Buildings through Autodesk Revit and making physical model using cardboard / Acrylic sheets provided

MENTORS: Mr. Vinayak, Mr. Deepak V, Mr. Shiva Manikanta

INTRODUCTION :

Product design process: this would be a set of strategic and tactical activities, from idea generation to commercialization, used to create a product design. In a systematic approach, product designers conceptualize and evaluate ideas, turning them into tangible inventions and products.

Activities:

- Day 1** – 1) Training on Basics of Fusion 360.
2) Basic Design of House / Buildings through Autodesk Revit and Building physical model using cardboard / Acrylic sheets provided

Designing and building a product - Using Fusion 360

- 1) Basic 3D modeling – 3D Designing of a product eg. Car, Mobile Casing, Wind Mill
- 2) Assembly
- 3) CAM (Computer Aided Machining)
- 4) Rendering – (Giving Realistic look to the product)
- 5) Basic Animation (For mechanical components)
- 6) Sheet metal (Designing outer body of ATM, Designing outer body of micro wave oven)

Day 2 – Forming teams, freezing upon the topics and starting off the projects

Day 3 – Finalizing the design, Presentation, Prize distribution.
On completion of this WORKSHOP the students would be able to design their own products using Autodesk Fusion 360

MAIN HIGHLIGHTS

Students will get exposure on 3D designing and basic Animation through Autodesk Fusion 360 and building a house / building using Autodesk Revit.

Contact:

K. Vinayaka K
Manager - Autodesk, Design and Innovation Centre.
Dayananda Sagar University | Ph.No. +91- 9972309580

EVENT 23:

TITLE: Actuation of a Crane Mechanism using Hydraulics Technology

MENTOR: Prof. K.Sudha Deepthi, Prof. Naveen

INTRODUCTION

Circuit for Crane Actuation Mechanism can be designed using Hydraulics Technology. The mechanism has two degrees of freedom which simulate a crane lifting and rotating a load. This application fits well with the switch-mode hydraulic circuit as the cylinder that lifts the mechanism requires high pressure and low flow, while the cylinder that rotates the mechanism requires low pressure and high flow.

ACTIVITY PLANNED FOR THE PROJECT:

Explanation of Hydraulics components, valves, design of circuit for crane mechanism using Hydraulics Technology will be given to the students. Students will design hands - on circuit on the Hydraulics Test Rig.

Activities:

First two days will be including Demo and practical Hands-on-Training on Hydraulics Test Rig and the last day will be the competition which includes designing of the circuit which has a time limit.

On completion of this WORKSHOP the student will be able to Design Hydraulics circuit with basic understanding of Valves, Symbols.

MAIN HIGHLIGHTS

Basics of Hydraulic Component, Valves, Design of Circuits

Contact:

K.Sudha Deepthi | 9502033737 | Sudha-bosch@dsu.edu.in
Prof. Naveen | 7795664442



EVENT 24:

TITLE: Artificial Intelligence and Machine Learning Bootcamp

MENTORS: Dr. Sanjay Chitnis

INTRODUCTION

Tomorrow's world will be full of intelligent systems. Are you game for building such a system that will help us live a better life? Examples are recognizing handwritten text by computers or detecting fake notes from images or make computers synthesize music!

Students need to have basic programming skills in any one programming language.

Activities:

Day 1: Concepts of machine learning, intro to python and Hands-on exercise on Google Tensorflow.

Day 2: Form teams, Innovate and build a machine learning program based on available data. Record a demo video.

Day 3: Setup exhibition and demonstrate to other participants and Judges!

On completion of this WORKSHOP the student will be able to:

- Understand basics of machine learning using Google Tensorflow
- Build a machine learning application

MAIN HIGHLIGHTS

- Use your creativity to build an Intelligent System.

Contact:

Dr. Sanjay Chitnis, director-ie@dsu.edu.in



EVENT 25:

TITLE: Performing magic with image using a tool MATLAB

MENTORS: Dr. Nagaraj Y., Prof. S. Sivaramakrishnan, Prof. Chandra Shaker B

INTRODUCTION

In a three day workshop students will be trained on numbers and vector analysis, and their relationship with images and undergo the concepts involved in image formation, and its pre-processing and post-processing. They will be taken through the journey of image enhancement, image denoising, image sharpening, etc, and its future trend.

On completion of this workshop, students will be able to:

- Understand the math behind image formation
- Understand how to alter image contents to produce a better image
- Understand how to generate graphs from a mathematical equation
- Build some real time applications using image processing

Activities:

Day 1: Introduction to Matlab in terms of numbers and vectors, and its relation to images

Day 2: Introduction to image processing

Day 3: Algorithm building and testing

Contact:

1. Dr. Nagaraj Y, Department of ECE, nagaraj-ece@dsu.edu.in
2. Prof. S. Sivaramakrishnan, Department of ECE, sivaramkrish-ece@dsu.edu.in
3. Prof. Chandra Shaker B, Department of ECE, chandra-ece@dsu.edu.in



EVENT 26:

TITLE: Pneumatics Circuit for opening of BMTC Bus Door

MENTORS: Prof. K.Sudha Deepthi

INTRODUCTION

Implementation of Pneumatics circuit for opening of BMTC Bus door. In this Project Circuit explains the mechanism of BMTC Bus Door opening with the help of valves and/ or double acting cylinder.

Activities:

First two days will be including Demo and practical Hands-on-Training on Pneumatics Test Rig and the last day will be the competition which includes designing of the circuit which has a time limit.

On completion of this WORKSHOP the student will be able to Design pneumatics circuit with basic understanding of Valves, Symbols.

MAIN HIGHLIGHTS

Basics of Pneumatics Component, Valves, Design of Circuits

Contact:

Prof. K .Sudha Deepthi | 9502033737
 Sudha-bosch@dsu.edu.in

EVENT 27:

TITLE: Game Development using Python

MENTORS: Prof. Srinivasan Lakshminarayanan

INTRODUCTION

Children have been only exposed to “Read, Understand, Reproduce” method of learning.

Project Based Learning helps them to move on to ask question, research answers, discuss amongst themselves and experiment their understanding.

Activities :

Day 1: Basics of Python

Day 2: Basics of Pygame, A Python Library to implement Games

Day 3: Exhibition of the game developed

On completion of this WORKSHOP student would be able to:

- Question, find answers and verify their answers through experimentation

MAIN HIGHLIGHTS

- Emotional Awareness, Metacognitive Awareness

Contact:

Prof. Srinivasan L | srinivasan-acad@dsu.edu.in



EVENT 28:

TITLE: Smart Traffic Control System using Programmable Logic Controller (PLC)

MENTORS: Prof. K.Sudha Deepthi

INTRODUCTION:

Implementation of a smart traffic light control system based on Programmable Logic Controller (PLC) technology. In this method, the traffic density is measured by counting the number of vehicles in each lane and their weight, then park in automated parking or diverge them accordingly. It is also difficult for a traffic police to monitor the whole scenario round the clock. So, this system can be implemented on highways and city traffic.

Activities:

First two days are dedicated to train all of the students in coding, ladder logic diagram in the software, software tools, debugging the errors, understanding the software and the concept of traffic control system in two lanes, achieving the smart traffic control system through ladder logic diagram followed by simulation.

On completion of this WORKSHOP the student will be able to develop a code to control the traffic light in two opposite lanes and also will be able to simulate the control of the system and also would be able to develop a smart traffic control system.

MAIN HIGHLIGHTS

1. Exposure to Automation Technology Programmable Logic Controller (PLC)
2. Developing a Ladder Logic Diagram
3. Controlling Traffic system to achieve a Smart Traffic Control System

Contact:

K.Sudha Deepthi | 9502033737 | sudha-bosch@dsu.edu.in

EVENT 29:

TITLE: A Walk Through Combinatorics for a taste of Math Olympiad

MENTORS: Dr. Chandrasekar Vaidyanathan, Dr. Sunanda Saha, Dr. Mahalakshmi, Prof. Ms. Subhadra Mishra, Prof. Ms. Pravisha John

INTRODUCTION:

Combinatorics is a rich field with scope for a number of creative questions in any Math Olympiad. In this event, we plan to train upto 30 students in some topics related to combinatorics and

will conduct an Olympiad style exam on the third day. Students with strong mathematical background are encouraged to apply for this event.

Activities:

Day 1 and 2: Rigorous boot camp on Combinatorics, starting from 9.00 am-4.00 pm

Day 3: Olympiad Style exam for 3 hours, 10.00 am-1.00pm.

Contact:

Dr.Chandrasekar Vaidyanathan
 Chairman, Maths and Assistant Dean Academics – SOE
 Dayananda Sagar University
 Ph.No. +91- 8105723030 | Email: chandra-math@dsu.edu.in

EVENT 30:

TITLE: Training on Smart Drug Development using Bioinformatics (SDDb training)

Mentors: Dr. Farhan Zameer & Prof. Sunil S More.

Venue: Research Lab (Building no.7, Dayananda Sagar Institutions, Kumaraswami Layout, Bengaluru-560078); Existing Research Facility available.

Group of 4-6 students could be accommodated per batch.

INTRODUCTION:

By building on the successes of the past and leveraging both innovative technologies and predictive knowledge, scientists can develop smarter ways to create a molecular armamentarium of chemical and biological medicines. In light of the high relevance of polypharmacology, multi-target screening is a major trend in drug discovery. As such, the increasing amount of available structure–activity data requires the application of chemoinformatic approaches to mine structure–multiple activity relationships. To this end, activity landscape methods, initially developed to explore the structure–activity relationships for compounds screened against one target, have been adapted to mine Structure–Multiple Activity Relationships (SMART). The training covers general, usable, open-source methods and can be implemented to explore other data screened across multiple biologically endpoints.

Students will get hands-on training for designing newer drugs using advance tools of Chemoinformatics.

Contact :

Prof. Sunil S More | 8073246552 , drsunil@dsu.edu.in
 Dr. Farhan Zameer | 9844576378, farhanzameer@dsu.edu.in

EVENT 31 :

TITLE: Training on Fly Biology and its Implications as Biomimics (FBIB training)

Mentors: Dr. Farhan Zameer & Prof. Sunil S More.

Venue: Fly Lab (Building no.7, Dayananda Sagar Institutions, Kumaraswami Layout, Bengaluru-560078); Existing Research Facility available.

Group of 4-6 students could be accommodated per batch.

INTRODUCTION:

The fruit fly, *Drosophila melanogaster* has been extensively studied for over three century as a model organism for genetic investigations. It also has many characteristics which make it an ideal organism for the study of animal development and behavior, neurobiology, and human genetic diseases and conditions. Why? What makes it such a good model?

It's more like us than you think. To benefit medical studies, a good model organism needs to share, on the molecular level, many similar features and pathways with humans. It turns out that approximately 60% of a group of readily identified genes that are mutated, amplified, or deleted in a diverse set of human diseases have a counterpart in *Drosophila*. Studying these genes in *Drosophila* lets scientists bypass some of the ethical issues of biomedical research involving human subjects. They're easy to keep, and work with. The fruit fly has many practical features that allow scientists to carry out research with ease: A short life cycle, ease of culture and maintenance, and a low number of chromosomes, a small genome size (in terms of base pairs), but giant salivary gland chromosomes, known as polytene chromosomes. Let's explore these advantages a bit more, and then dive into how the fly has helped us understand a wide range of human conditions.

Students will get hands-on training to explore small insects for exploring biology in a better module.

Contact :

Prof. Sunil S More | 8073246552 , drsunil@dsu.edu.in
 Dr. Farhan Zameer | 9844576378, farhanzameer@dsu.edu.in

EVENT 32:

TITLE: Bioremediation of Xenobiotic Compounds

Mentor: Dr. Shobha Jayanna

INTRODUCTION:

Xenobiotic compounds are manmade chemicals that are present in the environment at unusually high concentrations. The xenobiotic compounds are either not produced naturally or are produced at much higher concentrations than that of man. Microorganisms have the capability of degrading all naturally occurring compounds. Microorganisms are also able to degrade many of the xenobiotic compounds, but they are unable to degrade many others. The compounds that resist biodegradation are called recalcitrant. The recalcitrant compounds can be polychlorinated biphenyl compounds, synthetic polymers, alkylbenzyl sulphobnates, oil mixtures and others.

Although physical and chemical methods can be used for bioremediation, they have the limitations, whereas biological method like bioremediation is one of the best ways to degrade waste . Bioremediation is environmentally friendly, cost effective and complete mineralization of compounds can be possible. Example oil spills cause severe damage to the ecosystems and pose threats of fire, ground water pollution and air pollution due to evaporation. In addition, oil refineries generate huge quantities of oily sludge, a hydrocarbon waste. In microbiology lab mineral media can be used for enrichment of pollutant degrading organisms. Further potential microorganism able to degrade pollutant can be screened, isolated and identified and can be used for bioremediation of polluted site.

Contact:

Dr. Shobha Jayanna | 9980175377
 shobha_jayanna@rediffmail.com)



EVENT 33:

TITLE: Detection of genetic determinants of antibiotic resistance in Escherichia coli isolates from Urinary Tract Infection

Mentor: Dr. Suswetha Das

1.Explanation

India is among the world’s largest consumers of antibiotics. The efficacy of several antibiotics is threatened by the emergence of resistant microbial pathogens. Multiple factors, such as a high burden of disease, poor public health infrastructure, rising incomes, and unregulated sales of cheap antibiotics, have amplified the crisis of antimicrobial resistance (AMR) in India. The Global Action Plan on AMR emphasises the need to increase knowledge through surveillance and research (Bhabotosh Das et al. 2017). Antimicrobial resistance is recognized as one of the most serious global health threats with ESKAPE group of pathogens being a large problem (Zhang et al., 2018; Pogue et al., 2015). Escherichia coli (E. coli) is both a ubiquitous commensal bacterium in intestinal tract and an important pathogen of diarrhoea or extra intestinal infections of humans and animals, and both commensal and pathogenic isolates usually share the same environment (Wu et al., 2013). Multidrug-resistant bacterial infections are on the rise as many traditional antibiotics have been rendered ineffective. Gram-negative pathogens (GNPs) such as E. coli and K. pneumoniae have been reported to have acquired resistance to most of the commonly used antibiotics. During the last 10 to 15 years a global epidemic of extended-spectrum beta-lactamase (ESBL)-producing enterobacteria has emerged. Another major concern are New Delhi metallo-β-lactamase-1 (NDM-1) expressing pathogens, which are not only resistant to carbapenems but also resistant to a range of other last resort antibiotics including colistin.

The present study aims to screen Extended Spectrum beta Lactamase (ESBL) and NDM-1 in E. coli isolates from Urinary Tract infection to detect the pattern of circulation of New Delhi metallo beta lactamase in the samples under investigation.

2.Training of the students

The student will be trained to address a research problem with suitable methodology:

Objectives	Methodology
Current Status of the problem (Antibiotic Resistance)	<ul style="list-style-type: none"> Literature Review from available data in the mentioned Research area
Isolation of E. coli	<ul style="list-style-type: none"> Media preparation Microbial culture Streaking to obtain pure colonies
DNA Extraction	<ul style="list-style-type: none"> Extraction of DNA by boiling method
PCR for E. coli strain Identification	<ul style="list-style-type: none"> Setting PCR reaction with specific primer set and PCR components Setting the thermal cycling conditions in a Thermo cycler Agarose Gel Preparation
PHENOTYPIC: Antimicrobial Susceptibility Testing (ABST) for 2-3 common antibiotics	<ul style="list-style-type: none"> ABST by Disc diffusion test
GENOTYPIC: PCR based detection of genetic determinants of antibiotic resistance	<ul style="list-style-type: none"> Setting PCR reaction with specific primer set

3.Expected Outcome:

- The research study will add important information to comprehend growing antibiotic resistance menace.
- Student will be equipped to analyse a significant research problem and use suitable protocols to address the problem.
- Student will be given hands on experience with molecular methods to address a research problem

Contact:

Dr.Suswetha Das: 9916371885 | susweta@dsu.edu.in

EVENT 34:

TITLE: Changing the world through Digital Experiences

Mentor: Baljeet Singh Juneja , Solutions Consultant & Evangelist

A) Designing-->Wireframing-->Sharing ----- Adobe XD

Adobe XD is a user experience design software application. It supports vector design, mobile app/website wireframing, and creating simple interactive click-through prototypes.

Adobe XD gives you everything you need to design and prototype websites, mobile apps, voice interactions, touch screens and more. It's the fastest way to go from idea to experience all in the same app.

Quickly turn your wireframes into high-fidelity designs. Then switch from design to prototype mode in a click and drag wires between your designs to create an interactive prototype. Record experiences and preview them on your phone or desktop and add micro-interactions using auto-animate. With password protection and private invites, you can safely share prototypes and Design Specs with your team from desktop or the web.

B) Everyone can be a Video Editor with Adobe Premiere Rush

Go from shoot to showtime in record time. Built-in camera functionality helps you to take pro-quality video on your mobile devices. Editing is easy, with simple tools for colour, audio, motion graphics and more. Share right from the app to favorite social channels like YouTube, Facebook and Instagram.

Wow your followers with professionally-designed motion graphic templates right in the app or find hundreds more on Adobe Stock. Change the colour, size, font and more to match your personal brand. And take your videos from amateur to amazing Premiere Rush works across all your devices. Capture footage on your phone, then edit and share to social channels on your phone, tablet or desktop. Everything is synced to the cloud, so your latest edit is always at your fingertips, anywhere you are.

Contact:

Mr Supreeth Nagaraju A | nagaraju@adobe.com

EVENT 35:

TITLE: SOLIDWORKS 3D DESIGN - Idea to Reality in the 3D Environment in 3 Days

Mentor: Mr Anoop Bagalkot, Senior Consultant and Designer- SOLIDWORKS

The birth and evolution of SolidWorks is to enliven all kinds of creativity in true 3 Dimension. Every individual irrespective of age or experience has ideas. Some become reality while a great many others of merit vanish-unheard of. This is because bringing these ideas to the path of reality is hard. If an individual with an idea is brimming with confidence – progression to the next level is now possible.

The birth and evolution of SolidWorks is to enliven all kinds of creativity. This is the only tool that anyone can learn in days and start creating. Everyone has an engineer in them – SolidWorks brings the latent engineers’ ideas to reality with ease.

It is a 3D Design platform that embraces collaborative thinking – not merely the engineer. An ideal platform to bring for the kind of agile thinking in growing minds. This workshop and the “Idea to Reality in 3 Days” exercise will give you a jumpstart into this new world of super startup’s and innovations.

Exercise 1: Creation of an Individual Part based on individual ideas? A unique problem will be posed to the student.

Exercise 2: A fascinating experience of creating and working in the flexible world of multiple parts assembled and dis-assembled. A very uniquely designed Assembly exercise is on the cards.

Contact:

Mr Annoop Bagalkot | anoop.b@beacon-india.com
 Ph: 97429 94059



Rewards @ DSU Talent Search 2018

Total Cash Prize: Rupees Five Lakh

- Certificates and cash prizes to top five teams
- Partner Companies to support further development of the initial Idea/Concept to reach advanced levels
- Preference in admission to B.Tech programme in Computer Science Engineering & Entrepreneurship at DSU
- Support to seek a Mentor

- Preference in facilitating setting up of a Company to pursue the project to reach next levels including the last stage of-Go to Markets
- Participation certificates to all participating teams/ individuals

Note:

1. In all the above activities Jury would look for originality, innovation and presentation style to list winners among participants
2. Jury decision would be final and binding on all participants
3. Organizers reserve the right to modify the structure of the programme, without notice.

A Big Thank You!

Greetings!

The DSU Talent Search 2018, is now in its fourth year:

- A significant achievement made possible through support from the DSU Management/ faculty and its leadership
- And the Managements & Principals, faculty & students of participating Schools/PU Colleges from State and elsewhere.

The 2018 event now scheduled for 29th/30th November & 1st December is bigger than its previous versions with close to 35 events covering a wide range of topics catering to a student community representing diverse interests.

Help from the corporate sector is too large to be expressed in words; proving that industry and academia do work in tandem. A dozen MNCs supporting the Innovation Labs in DSU is significant and unique, nationally.

The youth of this nation, now has the best platform to innovate in an academic campus that is regarded as the most modern and futuristic. DSU is supported by accomplished faculty - always willing to collaborate in pursuit of innovation and disruptive solutions - with outcomes leading to entrepreneurship and new employment opportunities.

These efforts are a strong indication of DSU responding to the need for India to become a manufacturing economy: the Innovation Labs supported by industry and the Startup Village being the first steps in furtherance of a bigger vision.

Impressed by this great move of DSU, NITI Aayog has approved a DSU application to set up the Atal Innovation Centre (AIC)

under the Atal Innovation Mission (AIM); ranking DSU among: AISER-Pune, IIT-Delhi and other premier institutions in the country.

DSU's initiatives receive recognition and support from across the nation's borders: Arizona State University (ASU) ranked No. 1, (ahead of MIT and Stanford) in Innovation would now support DSU in its new initiatives.

The DSU Talent Search also provide for partnerships with Schools and Plus 2 Colleges. One of them being students while still in school can now experience life in a University.

Teachers aspiring to develop their career path through professional development could now plan to pursue a Master's degree at DSU and participate in the Train The Teacher program to be jointly offered by DSU and ASU.

Schools and Plus Two Colleges across the nation are invited to make best use of these great opportunities.

Best regards,

Prof R. Janardhan

Pro Vice Chancellor- Dayananda Sagar University
and

Senior Executive Vice President

Dayananda Sagar Institutions, Shavige Malleswara Hills

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Invitation for registrations:

Teams of 3-5 students may be sent from each school/college. A maximum of 2 batches of students under both the Junior and Senior categories would be accepted for registration from each school. Interested schools and PU Colleges are requested to send entries latest by 27th November, 2018.

NO ENTRY FEE

Submission of entries: Entry may please be forwarded by the respective school/college Principal in Form A to: dsutalentsearch@dsu.edu.in and janardhan.dsi@gmail.com

For more details/clarifications
Please call: +91 80 42161759
Visit us: www.dsu.edu.in



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