



2



6<sup>th</sup> Edition

# SAEINDIA TIFAN 2024

(TECHNOLOGY INNOVATION FORUM FOR  
AGRICULTURAL NURTURING)

'Automated Multi-Vegetable Transplanter'

## Welcome To TIFAN'24



## Address from TIFAN'24 Convener



### **CONVENER**

Mr. Ajay Aggarwal,  
Engineering Manager  
John Deere India Pvt. Ltd.

Grand welcome to all registered teams for TIFAN'24



# Sponsors

## Technology Sponsors



## Support Sponsors





## Agenda

- Introduction of Organizing Committee (Who is who?)
- Team stats and College connect
- Future contact details.Future contact details.
- Rule Book - Key Point
- TIFAN Event Flow
- Student's Corner
- Complimentary benefits
- Know your mentors
- Dos and Don'ts, Q&A
- SAE Membership – Benefits & Opportunities



# TIFAN'24 Deere OC Team:



**Abhilash Sahoo**  
Communication



**Swapnil Bagul**  
Sponsorship Lead



**Amir Osmani**  
Rule Book Lead



**Sandip Rajput**  
College Connect



**Arun Subramanian**  
Mentor Lead



**Sheetal Kolte**  
College Connect



**Praveen Sharma**  
Rule Book &  
Evaluation Committee



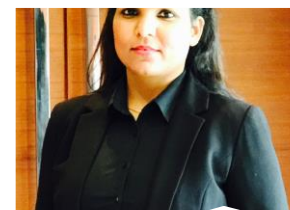
**Dharmendra**  
College Connect &  
Tech Lead



**K. N. Balaji**  
College Connect



**Sayali Gore**  
College Connect



**Rajwant Kaur**  
College Connect



**Mayuri Akiwate**  
College Connect



**Anand Fapal**  
Event Management



**Sushant Kadam**  
Judging committee



**Shivani Khandar**  
Sponsorship Lead



**Kripali Purbia**  
Sponsorship Lead



**Satish Chorge**  
College connect



**Krishna Kalatre**  
College Connect



**Vinit Jawale**  
Finance Team



**Yuti Trivedi**  
Finance

Ajay



# College Connects

20+ Seminars, 20+ Webinars, 100+ college connects, 1500+ students connects



Abhilash



# College Connects

20+ Seminars, 20+ Webinars, 100+ college connects, 1500+ students connects



Abhilash



# TIFAN'24- Participating Team Statistics



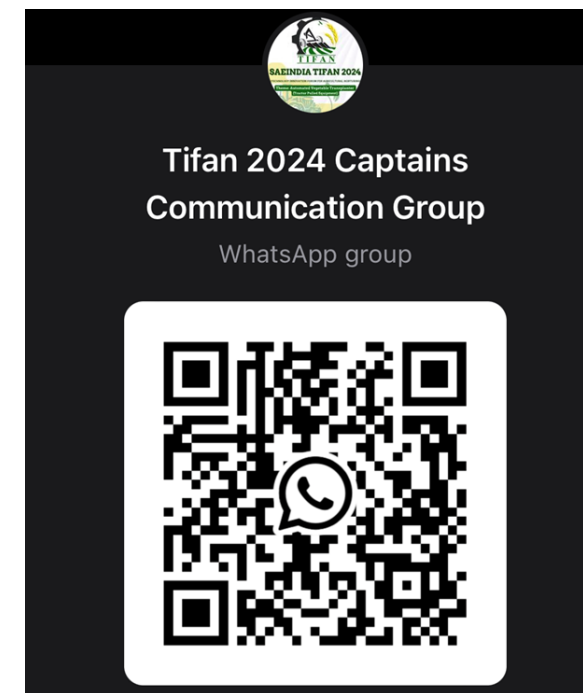
Abhilash





## Future Contact Details

- Captains & Vice Captains to join the WhatsApp Communication Group
- The group can be used for quick chats & answering queries
- All communications would be shared in WhatsApp as well as in email. Team is responsible for checking them regularly for updates
- All email correspondence to be sent to [tifan@saeindia.org](mailto:tifan@saeindia.org)
- *Make sure to share your team's name & college for any email*
- Update your email addresses & mobile numbers if not correct



**\*\*Refer group description for updates and OC point of contact\*\***

Abhilash

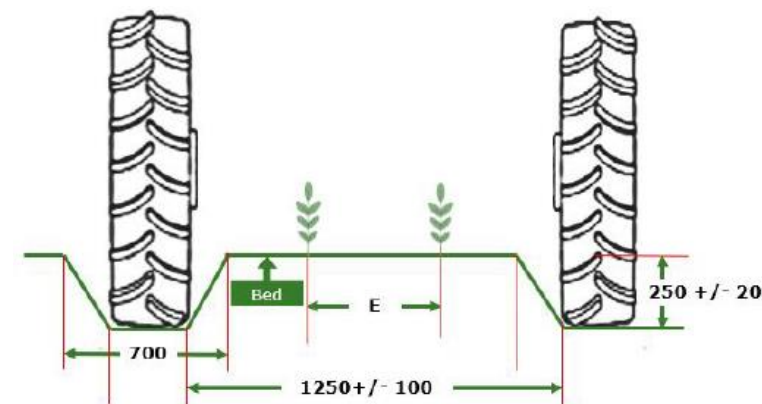
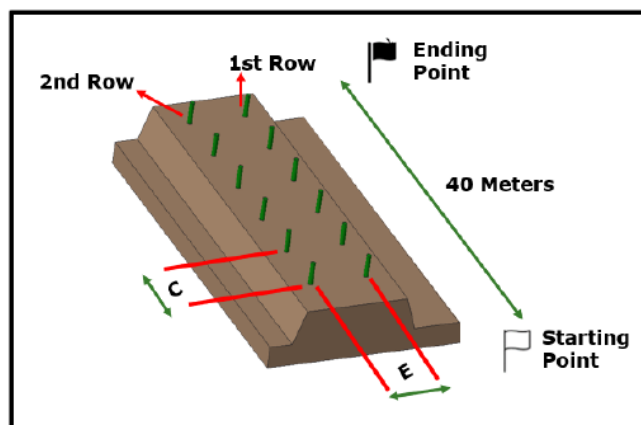
## TIFAN24 Rulebook – Key Points

- Theme – Autonomous Multi Vegetable Transplanter
  - Should be compatible for Tomato, Brinjal and Chili Saplings
  - Goal is to develop tractor pulled implement. **Self propelled implements are not allowed**
- Team should have 15-25 members from multiple engineering domain and at least one faculty advisor.
  - Valid SAE membership is must for students
  - Can have non-student member from farming background / farmer for inputs

### Basic Design Considerations



- Transplanter is expected to plant the sapling at desired plant and row spacing per rulebook
- Transplanter/Implement overall design dimensions should be per rulebook



Dharmendra



## TIFAN24 Rulebook – Key Points

- The Implement should be compatible with both ISO-730 CATI and CAT II hitch geometry.
  - 35-40 HP tractor will be provided by TIFAN OC at physical event
  - Implement should be pulled/transport through tractor 3-point linkage.
  - The sapling planting mechanism can be driven through ground wheel drive or PTO drive shaft from tractor
- Use of separate battery and other electrical energy storage devices are allowed per defined specification
- Teams are encouraged to incorporate at least one electronics based or electronics assisted system into the planting machine to promote digitalization and modernization of agriculture equipment.
- The structural member used in building machine frame must have at least 2 mm (0.078 in.) of wall thickness, regardless of material or section size and should have a minimum bending strength of 200Nm.
- All rotating parts should be properly shielded to ensure safety

**\*\* Teams are advised to read the TIFAN24 Rulebook thoroughly for detailed machine specification or requirements\*\***

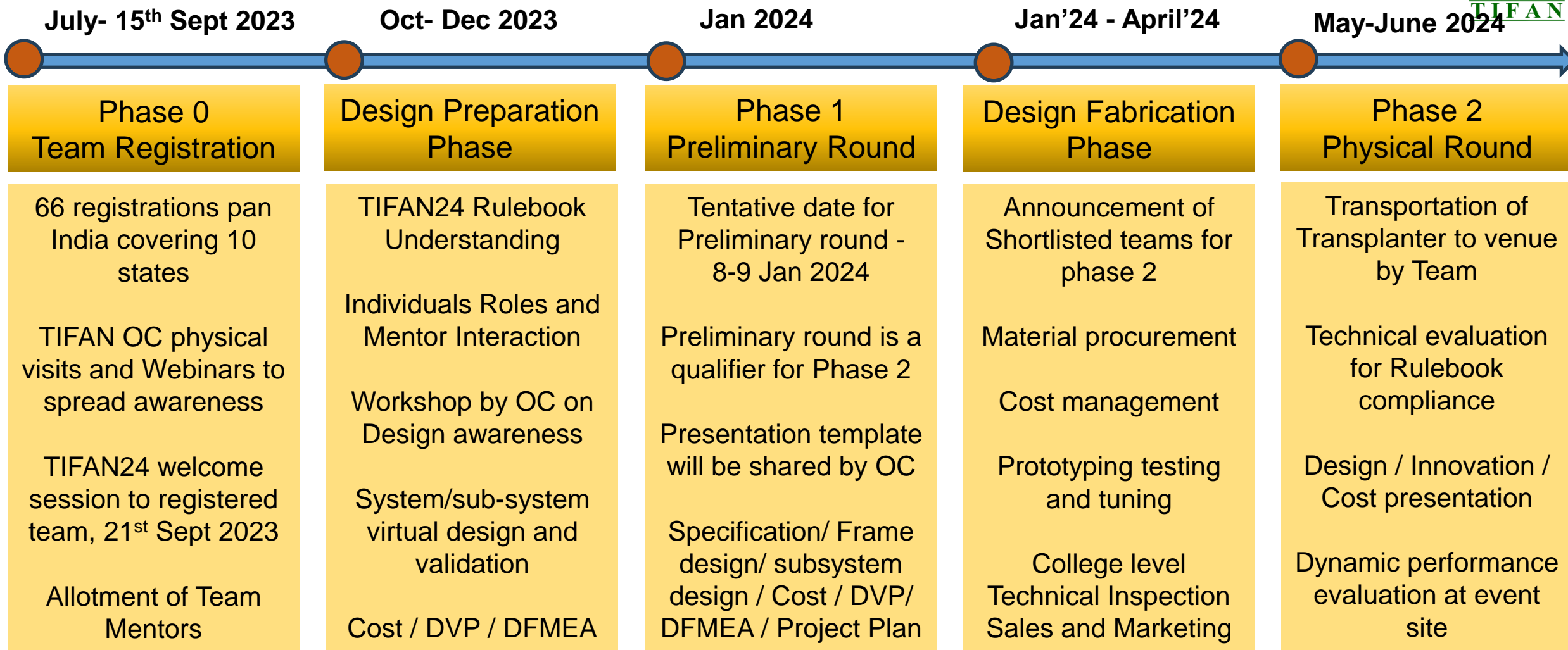
**\*\*New Rulebook with detailed evaluation criteria for dynamic round will be releasing on 29 Sept 2023\*\***

Dharmendra





# TIFAN24 Event Flow



Praveen

[About TIFAN2024](#)[Event Timeline](#)[Committee Members](#)[Sponsor](#)[TIFAN2023's Glimpse](#)[Contact us](#)[Student's Corner](#)

## SAEINDIA TIFAN 2024

### TIFAN2024 PHASE 1: UPDATE

[Click here to download Design Presentation](#)

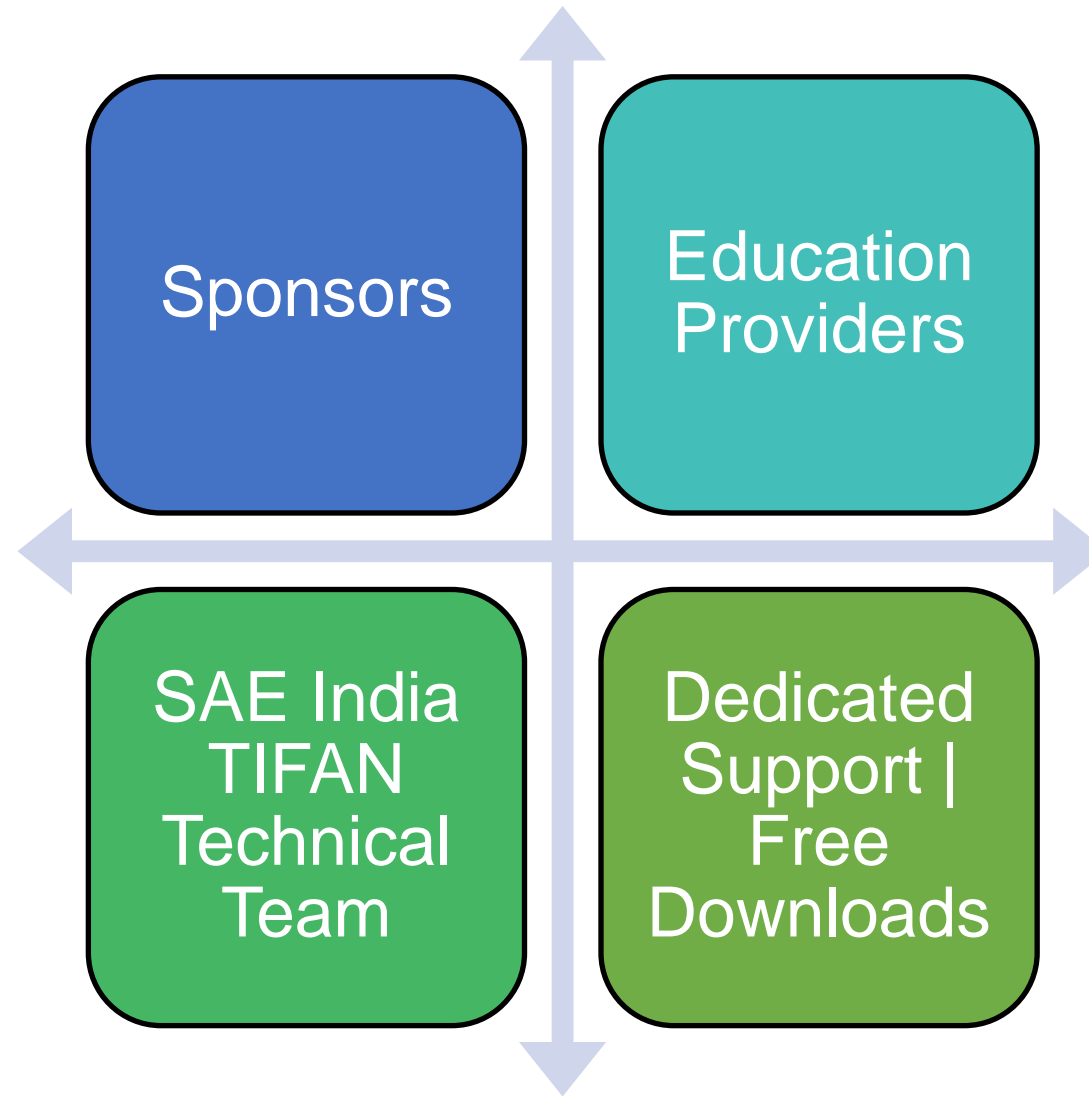
- ✓ Templates
  - Qualifying Round presentation
  - Technical Evaluation sheet
  - Sales and marketing presentation
  - Cost presentation/excel
- ✓ Announcements
  - Qualifying team for phase 2
  - Event Timelines

**\*\*Qualifying round presentation template will be available to download on 29 Sept 2023\*\***

Praveen



## Complimentary benefits



Swapnil



# We Support Student Competitions with software and technical support

## Student Competition Tutorials and Videos



Learn how to use MATLAB and Simulink to solve competition tasks

» Get started now



## Complimentary Software

MathWorks provides complimentary software for this competition. If your team is participating in this competition and needs software, fill out the software request form.

**Note:** For SAE TIFAN student teams the Complimentary Software link will be shared soon

For SAE TIFAN 2024- MathWorks would be happy to provide mentorship support

### Student Competition Webpage:

Visit <https://in.mathworks.com/academia/student-competitions.html>

### Student Videos and Tutorials:

[mathworks.com/academia/student-competitions/tutorials-videos.html](https://in.mathworks.com/academia/student-competitions/tutorials-videos.html)

*MATLAB and Simulink have become highly essential tools throughout the technical industry. The earlier the exposure the better. Formula Student has given us the chance to showcase the capabilities of using such simulation tools for practical purposes, which is definitely not possible in classrooms.*

- Roni Deb

Ather Energy

*[Ex-student SRM University, Chennai {between 2015 and 2017, Roni participated in Formula Student Germany, Formula Student India, and Formula Bharat}]*

# TIFAN Sponsorship Initiative

## 3 Requirements for 10,000/- INR Sponsorship

- 1) **Apply for Altair Software Sponsorship:** We offer Commercial Grade license for Participating teams and hence Free Altair Specialist led training ( live ).

<https://altairuniversity.com/sponsorshipapp/>

- 2) **Apply for Academic Lab License sponsorship:**  
Request form Shared

- 3) **Submit Model with Results to Global Altair Student Contest**

- 10,000/- INR for First 20 Valid participating team
- Win 1050\$ = Approx 84,000/- INR (Every month)
- Win 7500 \$ = Approx 6,00,000/- One Winner (yearly)

<https://web.altair.com/global-student-contest-2023>

**IMPORTANT:** You must submit this form and your files at the same time. This contest does not require pre-registration. Do not fill out this form until you are ready to submit your

complete optimization project

## Our Goals for You

Learn and have fun.

Promote your accomplishments.

Win money.

Improve your job-readiness.



**Vikram**

86881 75740 [vikramb@altair.com](mailto:vikramb@altair.com)

**Dharmateja**

62817 33981 [tdharma@altair.com](mailto:tdharma@altair.com)

**Note:** Please take a snapshot for further reference

## Altair Academic Initiative

- Free Academic License: <https://altairuniversity.com/free-altair-student-edition/>  
Software Installation Procedure: <https://www.youtube.com/watch?v=Lp3zAFPRFI>
- Free Learning Courses: <https://certification.altairuniversity.com/>
- Free Altair Domain specialist led training <https://learn.altair.com/>
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- ▮ Learn from YouTube Videos: <https://www.youtube.com/c/AltairHowTo>
- Altair Job Openings: Candidates with relevant Altair Certification is preferred!: <https://www.altair.com/careers/>



- **Industry Outreach Initiative:** Ecosystem what we have created to help the student community - Altair IOR. We will send invite email only to certified students. Platform to Support Virtual Internship to Students, Regular Internship and Job Opportunities.

<https://altairuniversity.com/industry-outreach/#!/home>

Students can do certification courses so that he/she can build Competency & build Industry Skillset. Also to make student profile visible to 75+ customers who are partnered with Altair via Industry outreach portal.

- Global Electric Vehicle Challenge - <https://altairuniversity.com/global-electric-vehicle-challenge/>  
- Altair Start-up Challenge 2021 - For EVs Training Program Recorded Videos:

<https://web.altair.com/asc-training-program-2021>

- Students Webinar Series : <https://altairuniversity.com/52300-altair-student-webinar-series/>

# Project based learning via Virtual Internship

Add New

Filter

## Published Status

- ☐ Published
- ☐ Draft

## Industry

## Resource Type

- ☐ Case Study
- ☐ eBook
- ☐ Introduction Video
- ☐ New Feature Videos
- ☐ Project Work for Students
- ☐ Reports - ProjectWork
- ☐ Self Paced Learning
- ☐ Tips and Tricks
- ☐ Training Video
- ☐ Tutorial
- ☐ Webinar

## Altair Tools

Apply Filters

Search resources...

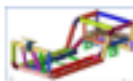


## Stiffness and Durability Analysis of Electric Rickshaw Chassis

by Amit L. Kanabagrishetkar

Synopsis: Chassis is the main structure and load carrying member of a vehicle. Chassis is subjected to various kinds of loads both during static and dynamic conditions. Performance of a chassis can be

[View Resource »](#)



## Topology Optimization of Electric Rickshaw Chassis Frame

by Amit L. Kanabagrishetkar

Synopsis: Optimum means the greatest degree or best result obtained or obtainable under specific conditions. Optimization techniques can be mainly classified into types Concept level and Fine tune lev

[View Resource »](#)



## Size Optimization of Electric Rickshaw Chassis Frame

by Amit L. Kanabagrishetkar

Synopsis: In case of size optimisation, to solve the optimization problem, properties of structural elements like shell thickness, spring stiffness, cross sectional properties of beams and mass are al

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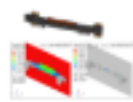


## Stiffness Analysis of Compliant Clamping Mechanism

by Praveen M Todi

Synopsis: Compliant mechanisms have been a common device to replace mechanical mechanisms that required discrete mechanical connections to connect and assemble components that were separately fabricat

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## Crash Analysis of an Automotive Bumper

by Deepanjali C Chikara

Synopsis: Bumper is a safety component in a vehicle, which is fitted in the front and rear ends. It is the first member that faces the obstacle when a collision happens. On a low velocity impact, the

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eBook



## Free eBook: Learn Multi-Body Simulation with Altair MotionSo

by Altair University

This book intends to serve as a guide helping you to get started with Multi Body Dynamics Simulation (MBD). It is more a quick reference to learn some of the basics – we deliberately refrain from the

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## Free eBook: Practical Aspects of Finite Element Analysis

by Altair University

We are very pleased to offer you our free study guide (PDF document) entitled "Practical Aspects of Finite Element Simulation". We feel that the content of the book makes a difference to the many bo

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## FREE eBook: Introduction into Fit Approximations with Altair

by Altair University

A first eBook on DOE with HyperStudy has been released in the beginning of 2017. We hope you have appreciated it and learned useful knowledge helping you to improve your studies. This second eBook des

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## FREE eBook: Simulation-Driven Design with Altair Inspire

by Altair University

Inspire, the industry's most powerful and easy-to-use Generative Design/Topology Optimization and rapid simulation solution for design engineers empowers its users by creating and investigating struct

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## FREE eBook: Simulation Revolution with Altair SimSolid

by Altair University

With this eBook, we want to introduce you to a kind of revolutionary simulation method. In these days we hear many buzzwords like disruptive, innovative, novel and so on. Because of that, we learned (

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- Dedicated Workshops on problem solving techniques by Triz Asia:
- Topics to include but not limited to below:
  - Introduction to TRIZ
  - Perils of Psychological Inertia
  - MATCHEMIB
  - Ability to see links between phenomena and objects
  - Ability to think analogically
  - Ability to Fantasize
  - Multi screen method
  - Functions
  - Road map of product innovation
  - Stage gate process



Sandeep Wankhade





## Know Your Mentors and Connect Process

- Teams completed full registration has been assigned with mentors for FY24 – Check your mail (Around 28)
- Encourage all the teams to complete the full registration and start getting mentorship from Industry experts
- Reach out to your mentors and get their Guidance to build your machine
- Mentors are your first point of contact on any doubts on TIFAN2024
- Start a group in WhatsApp with leads along with your mentors and start sharing the regular updates
- Discuss and share the progress with your mentor's biweekly

Arun



## Do's and Don'ts

### Do's

- Do ensure all team members contribute equally.
- Do adhere to rulebooks.
- Do follow given timelines.
- Do attend all the workshops & Seminars.
- Do bring innovation & creativity.

### Don'ts

- Don't try to copy existing market design.
- Don't take any external consultants help to get any work done.
- Don't assume any parameters in design if not mentioned in rulebook, contact mentors for clarification.

Dharmendra



## SAE Benefits

SAEINDIA Team

# Thank you

For more details



Mr. Vijay ([vijay.ab@saeindia.org](mailto:vijay.ab@saeindia.org))

Ms. Ayisha ([digitalconnect@saeindia.org](mailto:digitalconnect@saeindia.org))



<https://saeindia.org/tifan/>