



# ACS COLLEGE OF ENGINEERING

Kambipura, Mysore Road, Bengaluru – 560074.  
Department of Aerospace Engineering



## Report- Webinar on “Design Perspectives in Morphing Wings an Overview”

<b>Name of the Event</b>	:	Webinar on “Design Perspectives in Morphing Wings an Overview”
<b>Resource Person</b>	:	<b>Mr. GauthamVigneswar P N</b>
<b>Date &amp; Time</b>	:	04.06.2021&10.00 AM
<b>Platform</b>	:	Zoom
<b>No. of Participants</b>	:	70 Students + 3 AS Staff

### About the Webinar

The Webinar titled “Design Perspectives in Morphing Wings an Overview” was organized to enrich the knowledge of Aerospace students to get exposure tomorphing wings as a revolutionary concept.

The program was started at 10.00 AM with the welcome speech by HOD/AS and followed by the introduction of the resource person **MrGauthamVigneswar P N**by MrSiva J, Asst. Prof. ASE. The resource person handled an interactive session about the structural design of morphing structures. Also, he explains about the application of this approach is demonstrated through an adaptive trailing edge device design example, including FE modelling, simulations and results assessment.

In between interaction with students and questionnaire to test the ability of students and the resource person motivated the students to enrich their skills through different case studies. Finally, the webinar was ended with a vote of thanks by HOD/AS.



# ACS COLLEGE OF ENGINEERING

Kambipura, Mysore Road, Bengaluru – 560074.  
Department of Aerospace Engineering



Sample Photos of Webinar on “Design Perspectives in Morphing Wings an Overview”

**ACS COLLEGE OF ENGINEERING**  
Affiliated to VTU, Belagavi, Approved by AICTE New Delhi and Govt. of Karnataka  
(A Unit of RajaRajeswari Group of Institutions)  
Mysore Road, Bengaluru, Karnataka.

**DEPARTMENT OF AEROSPACE ENGINEERING**

*Presents Webinar on*  
**“DESIGN PERSPECTIVES IN MORPHING WINGS: AN OVERVIEW”**

**RESOURCE PERSON**  
**GAUTHAM VIGNESWAR P.N.**  
Former Design Engineer,  
UTC Aerospace.  
Research Scholar, IIT Madras.

Registration Free  
<https://forms.gle/iwcxFDVLHRgHTa7b7>  
\*E-Certificates will be issued

Event Coordinator  
Mr.J. SIVA  
Ph:8667291504

Head of the Institution  
Dr.M.S. MURALI  
PRINCIPAL

**Date**  
04-06-2021  
**Time**  
10:00 AM

## INVITATION

**Design Perspectives in Morphing Wings**  
With Emphasis on Camber morphing  
*PN Gautham Vigneswar*

Participants (39)

- Makesh (Host, me)
- Gautham
- Gautham PN
- 1AH18AS001 Abhishek
- 1AH18AS003 Ananth Padmanabha K
- 1AH18AS015 kashyapa bramha v
- 1AH18AS017 Lokesh
- 1AH18AS020 Nagaraja M V
- 1AH18AS024 Priyanka L P
- 1AH18AS028 Shreekrishna
- 1AH18AS030 Srimadhi N S
- 1AH18AS031 Sushmitha B
- 1AH18AS032 Swetha Shree S
- 1AH18AS034 Varshith

## Chief Guest Introduction



# ACS COLLEGE OF ENGINEERING

Kambipura, Mysore Road, Bengaluru – 560074.  
Department of Aerospace Engineering



Zoom Meeting

## Engineering & The Problem of Second Nature

*Nature – the only provider for human beings  
Harness nature, by way of nature to build a second nature.*

**Philosophy of Mechanical Design: Function - Form problem**

**Questions usually (not) asked in pedagogy:**

- \* Why does any invention exist? **ESSENCE** for existence
- \* Why has it taken the particular **FORM?** (shape/morphology/material/)

**Design thinking starts with a desire to break free of current limitations:**

- \* Function (Essence) - Necessity/Design requirement
- \* Form – Invention that fulfills human necessity

**Design process/ Designing:**

- \* Arrive at the required form within the imposed constraints – **natural & man-made.**  
*Natural constraints: Material ores, climatic conditions, biological, etc.*  
*Man made constraints: Resource distribution, buying capacity, cultural norms, etc.*
- \* Always a **Compromise.**
- \* Practically speaking, the new design should show substantial improvement in performance.
- \* Certification, to ensure controllable or tolerable harmful side effects.

04-05-2021 3

Gautham PN

Mukesh

1AH18AS021 -Ni...

Poojitha 1AH19...

1AH18AS012 C...

Participants (45)

Find a participant

- M Mukesh (Host, me)
- G Gautham
- GP Gautham PN
- A 1AH18AS001 Abhishek
- 1AH18AS003 Ananth Padmanab...
- 1C 1AH18AS012 CHANDRU B M
- 1K 1AH18AS015 kashyapa bramha v
- I- 1AH18AS017 -Lokesh
- 1AH18AS020-Nagaraja M V
- 1B 1AH18AS021-Nithyaani B S
- 1P 1AH18AS024 Priyanka L P
- 1S 1AH18AS026- Shreekrishna
- 1AH18AS030 Srinidhi N S
- 1S 1AH18AS031- Sushmitha B

Go to Settings to activate Windows  
Invite Mute All

## Chief Guest Address

Zoom Meeting

## Morphing Aircraft

**Morphing:**  
Greek word – morpho (shape/figure)  
Morphing in aeronautical field: *A set of technologies that increase a vehicle's performance by manipulating certain characteristics to better match the vehicle state to the environment and task at hand.<sup>[1]</sup>*

Morphing	Goal	Performance Metric
Landing gear retraction	Drag Reduction	$C_D$
Flap deployment	High lift generation	$C_L$
Trust vectoring	Maneuvering	Turn Radius

In research terminology morphing technologies mean,  
Technologies that are cutting edge and/or futuristic are considered as morphing technologies.

**Shape Morphing Wing<sup>[2]</sup>**

Shape Morphing Wing

Flare
Wing
Blow
Chord

Chordwise
Nail
Oblique
Spanwise

AMM
Canard
Thickness

04-05-2021 4

Gautham PN

Mukesh

Vijay Muthuvelan

1AH19AS038 So...

P S Yatish Govin...

Participants (56)

Find a participant

- M Mukesh (Host, me)
- G Gautham
- GP Gautham PN
- 1AH17AS004 akASH
- A 1AH18AS001 Abhishek
- 1AH18AS003 Ananth Padmanab...
- 1AH18AS004 : Aniket Ostwal
- 1AH18AS006: Anurag S
- 1AH18AS007: Anusha R
- 1C 1AH18AS012 CHANDRU B M
- 1J 1AH18AS013—Gangotri J v
- 1K 1AH18AS015 kashyapa bramha v
- I- 1AH18AS017 -Lokesh
- 1AH18AS020-Nagaraja M V

Go to Settings to activate Windows  
Invite Mute All

## Chief Guest Address