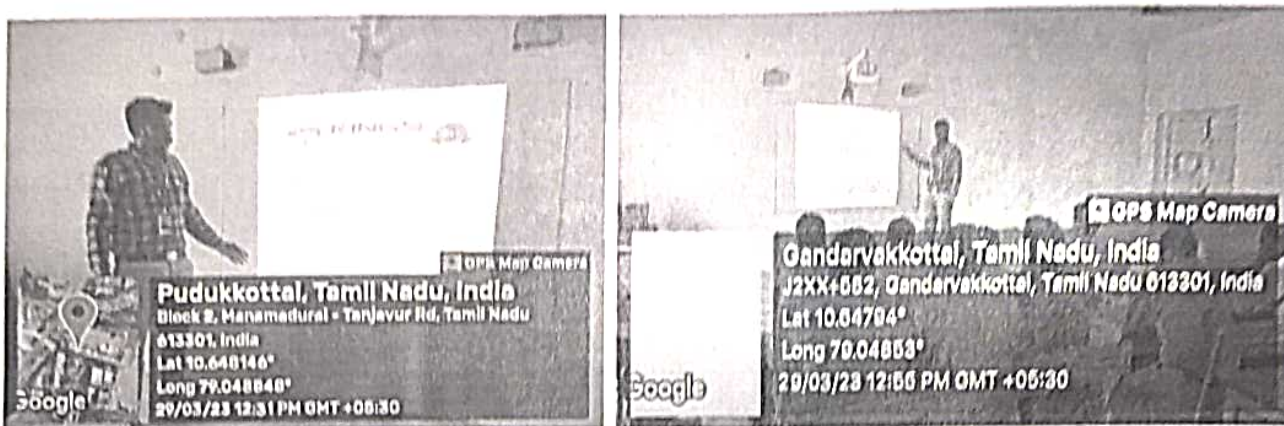




**Department of Mechanical Engineering**  
**Academic year 2022-23 (EVEN)**  
**Internal staff seminar Report**

Date & time : 29.03.2023 & 12.30 p.m  
Venue : Department Smart Classroom  
Topic : Seminar on "Intelligent Variable Valve Timing"  
Resource person : Mr.S.Balaganesh /Mechanical



**Snapshots of the session**

Internal seminar on Intelligent Variable Valve Timing has been delivered by Mr.S.Balaganesh, Assistant Professor, Department of Mechanical Engineering for the staff members of Mechanical Engineering on 29/03/2023 at 12.30 p.m.

Here few points are discussed:

VVT-IE (Variable Valve Timing - Intelligent by Electric motor) is a version of Dual VVT-IE that uses an electrically operated actuator to adjust and maintain the intake camshaft timing. The exhaust camshaft timing is still controlled using a hydraulic actuator. To advance the camshaft timing, the actuator motor will rotate slightly faster than the camshaft speed. To retard camshaft timing, the actuator motor will rotate slightly slower than camshaft speed. The speed difference between the actuator motor and camshaft timing is used to operate a mechanism that varies the camshaft timing. The benefit of the electric actuation is enhanced response and accuracy at low engine speeds and at lower temperatures as well as a greater total range of adjustment. The combination of these factors allows more precise control, resulting in an improvement of both fuel economy, engine output and emissions performance.

### Chapters Discussed:

- Direct injection
- Variable valve timing
- Turbochargers
- Electrical VVT
- Variable valve duration (VVD)
- VTT design highlights

### Outcomes:

Upon listing of this seminar the participants can able to

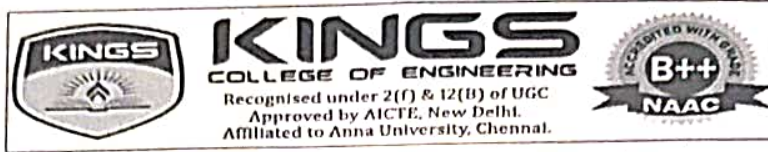
- Understand the various injection systems in engines.
- Understand the concepts of Intelligent Variable Valve Timing.
- Able to understand the valve mechanisms in the engines.

### References:

1. C. N. Grimaldi and F. Millo, "Internal Combustion Engine (ICE) Fundamentals," in Handbook of Clean Energy Systems, 2015.
2. Stewart, P., D. Gladwin and P. J. Fleming. "Multiobjective Analysis for the Design and Control of an Electromagnetic Valve Actuator." Proceedings of the Institute of Mechanical Engineers: Vol 221, Part D; p567-577, 2016.
3. Moriya, Y., Watanabe, A., Uda, H., Kawamura, H. and Yoshioka, M. (2014). A newly developed intelligent variable valve timing system - Continuously controlled cam phasing as applied to an new 3 liter inline 6 engine. SAE Paper No. 960579

*S. J. A.*  
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HOD/MECH



**Department of Mechanical Engineering**  
**Academic year 2022-23 (EVEN)**  
**Internal staff seminar attendance**

Date & time : 29.03.2023 & 12.30 pm  
 Venue : Department Smart Classroom  
 Topic : Seminar on "Intelligent Variable Valve Timing"  
 Resource person : Mr.S.Balaganesh , /Mechanical

Sno	Staff name	Signature
1	Dr.T.Pushparaj	<i>[Signature]</i>
2	Dr.P.P.Shantharaman	<i>[Signature]</i>
3	R.Shankar	<i>[Signature]</i>
4	H.Agilan	<i>[Signature]</i>
5	N.Magesh	<i>[Signature]</i>
6	M.Melwin Jagatheesh Sridhar	<i>[Signature]</i>
7	S. Sabanayagam	<i>[Signature]</i>
8	M.Sakthivel	<i>[Signature]</i>
9	S.Desikan	<i>[Signature]</i>
10	S.Nelson Raja	<i>[Signature]</i>
11	R.Rajadurai	<i>[Signature]</i>
12	D.Balaji	CL
13	V.Aravind	CL
14	Mr.M.Vivekananthan	<i>[Signature]</i>

**Internal staff seminar feedback summary:**

S.no	Description	Good	Fair	Poor
1	Content of the speech	9	3	-
2	Voice of the speaker	9	2	1
3	Overall feedback	8	4	-

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 HOD/MECH 29/3/23