

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

Date & time : 21.04.2023 & 12.30 p.m
 Venue : Department Smart Classroom
 Topic : Seminar on "Applications and properties of ceramic matrix composite"
 Resource person : Mr.M.Vivekananthan, AP/Mechanical



Snapshots of the session

Internal seminar on Applications and properties of ceramic matrix composite has been delivered by Mr.M.Vivekananthan, Assistant Professor, Department of Mechanical Engineering for the staff members of Mechanical Engineering on 21/04/2023 at 12.30 p.m in smart class room.

Here few points are discussed:

Ceramic composites are very important in the field of medical, automobile and aerospace industries. Ceramic Matrix Composites can have a polycrystalline structure, as in conventional ceramics. They can also be amorphous or have inhomogeneous chemical composition, which develops upon pyrolysis of organic precursors. The high process temperatures required for making CMCs preclude the use of organic, metallic or glass fibers. Only fibers stable at temperatures above 1,000 °C (1,800 °F) can be used, such as fibers of alumina, mullite, SiC, zirconia or carbon. Amorphous SiC fibers have an elongation capability above 2% - much larger than in conventional ceramic materials (0.05 to 0.10%). The reason for this property of SiC fibers is that most of them contain additional elements like oxygen, titanium and/or aluminum yielding a tensile strength above 3 GPa. These enhanced elastic properties are required for various three-dimensional fiber arrangements in textile fabrication, where a small bending radius is essential.

Chapters Discussed:

- Composite Materials
- Types of Composite
- Fiber ceramic composite
- Applications
- Automobile and Aerospace


Outcomes:

Upon listing of this seminar the participants can able to

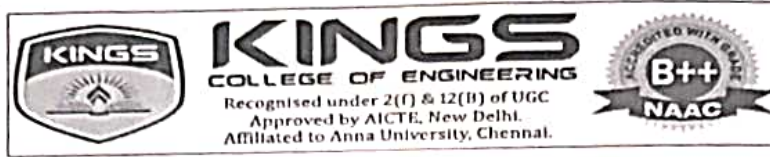
- Understand the various composite materials.
- Understand the concepts of ceramic composite and fiber ceramic composite.
- Able to understand the applications of ceramic composite.

References:

1. Chang, Yunwei "Review on ceramic-based composite phase change materials: Preparation, characterization and application." Composites Part B: Engineering (2023): 110584..
2. You, Xiao, "Review on 3D-printed graphene-reinforced composites for structural applications." Composites Part A: Applied Science and Manufacturing (2023): 107420.
3. Shvydyuk, Kateryna O., "Review of Ceramic Composites in Aeronautical and Aerospace: A Multifunctional Approach for TPS, TBC and DBD Applications." Ceramics 6.1 (2023): 195-230.
4. Yadav, Ramkumar, Anoj Meena, and Amar Patnaik. "Biomaterials for dental composite applications: A comprehensive review of physical, chemical, mechanical, thermal, tribological, and biological properties." Polymers for Advanced Technologies (2022): 1762-1781.
5. Hannachi, E., "Synthesis, characterization, and performance assessment of new composite ceramics towards radiation shielding applications." Journal of Alloys and Compounds 899 (2022): 163173.
6. Fu, Zeyu, "Research progress of ceramic matrix composites for high temperature stealth technology based on multi-scale collaborative design." Journal of Materials Research and Technology (2022).


25/4/23
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**Department of Mechanical Engineering
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 Resource person : Mr.M.Vivekananthan /Mechanical

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

S.P. Jayaraman
21/4/23
DEPT IQAC CO-ORDINATOR

T. Pushparaj
HOD/MECH
21/4/23