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SEMESTER 7, Mechanical Engg.
Subject :- Wind Energy.

Assignment no:1 :- literature Review of wind Turbine

	Title	Author	Research Paper date	findings.
1	Design, Medeling and economic Perfference of a verticle areas wind turbine	S.R.Shah Rakesh-kumar A.S fung, kaamran Raahemifar	12 octobers 2018	The aim is to analyze the turbine blade shapes, develop a mathematic algorithm and to establish technotogy economic performance of shape design The turbine is capable of producing 7838 kwh of anual energy aput.

2	Dynamic stall in vertical axis wind turbine	Buchner A.J, Lohry M.W, Martinelliel. Sarica J, Smith A.J.	1 November 2015	Dymamic stall is the principal impediment to achieving improved aeredynamic efficiency. Here computations using the unsteady Reynalol's Arengeel Navier-Stakes equation with the menter-SST turbulence madelover a 2D demain over a tip speed ratios typical of the operation of vertical axis wind turbines.
4	A Critical review of vertical axis wind turbines for urban applications	Rakesh Kumar As fung, Kaamran Ranimefar	14 March 2018	VAWT are choosen over HAWT in urban area because of less wind flow VAWT's have good performance under the weakend unstable wind no noice and safety Concerns. and asthetically sound for integration in urban areas.
3	Numberical and experimental methods to investigate the behaviour of vertical axis wind turbine with stators.	M Burlanda A. Ricci A. Freda M.P Repetta.	18 August 2015	wind Tunnel Tests (WWT) Can provide the indispensable validation data for CFD numerical simulations WWT technique is applied to study the flow axoind and inside a muti-stage VAWT surxounded by Shorter vanes firstly the flow field

5	Numerical study of the aerodynamic performa of a 500W Darrieus S type vertical-axis wind turbistine	young Tae-lee Hea-Change lim	14 may 2015	Measurment of aerodynamic characteristic of a vertical axis wind turbine, Examination of the effect of Darxieus blad-ion the wind energy. estimation Sevexal saliend Perameters are used to make an optimization of a Darrieus blade Depending on the sotidity and Pitch angle the maximum Performance changes.
6	Influence of eparating conditions on unsteady wind Performance of vertical axis wind turbines operating within a fluctuating free-streams A numerical study	D.W. wekesa, long wang, Yingjie wei, Louis Angeln, M Donar.	5 November 2014	A Numerical method is Presented to investigate the influence of operating conditions on VAWT of NACA00xx Symmetric aixflails with 12% and 22% thickness in unsteady the CFD method was used to analyze the aexadynamic Performence and Physics of flow of the VAWT.
7	An Experimental Study an the Performance of Savonius wind Turbinas Related with the number of blades.	F. wenehenubun Andy Saputra Hadi Sutanta	27 ~~May~~ May 2015	VAWT include both a drang type configuration like Savonius wind turbine and a lice type configuration like Darieus wind turbine Savonius wind

				turbine experiment study conducted in the paper aims to invertigate the effect of number of blades on the performance of the model of savonius type wind turbine.
8.	Intelligence algerithan for optimization design for the laco wind speed airfail for wind. Ferbine.	xiooping pong. Haoyu wang. Jin chen	22 April 2019	In ander to develop wind resources in law wind speed (LWS) area a new intelligence algnorition based on the airfad profile is proposed end expr- esed by B-Spline for LWS airfoil comparing of DV air- fail with LWS airfail was done.
9.	Experimental evaluation of a non-conventional flate back thick airfail concept for large offshare wind turbines.	Ozlem Ceyhan WA Timmer.	27 August 2018.	Innorden large wind turbine blades thickflat back airfoils are often used in the root part of the blades due to their structural advantages. In the present study the scoallow foil concept is evaluated expeximentfally. in the TU Delftlow speed wind tunnal.

10.	Strength and fatigue analysis of low wind speed turbine hud.	Lei Zou Tan Jin, Xin-yuWing. Peng Qin, Xing Xu.	29 may 2011	The static strength analysis of low wind speed turbine hub was Calculated under the noormal and maximum loads by Ansys. Sinite element analysis saftware. the stress distrubletion of hub and strength of hub and fatigue was Calculated.
12.	Multi-AOA optimization of uaxiable-speed wind turbine airfoil	(12) Young zhi qiang Yin minghai Chen Xiaoyang. Zou Yun.	(11) 10 October 2016	(11) In this study the performaule of time different national Renewable Energy laboratory. airfail families are numerically investigated using 2D in computational fluid dynamics (CFD) solves. and exergy analysis
11	Numerical investigateon on the energetic perfomance of NREL airfoil families for wind turbine opplication	Seyed Metezavi Siavash Sabbaghai	(12) 10 October 2016	(12) The operating AOA distribution of VSWT's blade elevent is firstly investigated and described based on the inflow wind energy farther by focusing on increasing the lift to drag ratios at the AOA's with the controted distribution of inflow wind energy a multi-AOA design optimization method for VAWT. airfoil is proposed finally. to

13	Aerodynamic sensitivity analysis for a wind turbine airfoil in an air-particle two-phase flow.	Tangqing Guo Junjun Jin, zhiliang Wu, Di zhao, Tangqiang wang.	18 September 2019.	In this Paper the Navier stakes equation coupled with a lograngion discribed to cimulates the particle flow over the S809 airfoil of a 6MW wind turbine blade and the NACA0012 airfoil
14	optimum design of a ~~sma~~ small wind turbine blade for maximum Power production.	L Tengliri, y Khalil, F Abdi, A Bentang.	9 November 2017.	This Paper Present a typical design methodology of the rotor blades of a small wind turbine with a Power generation of 11. KW. first the design Parameters were Presented Then optimum ideas gemet was determine of using ~~Q-blad~~ optimum robot theory finally the wind turbine blade perfomance was ussed using Q-blade software.
15	Experimental modal analysis of ~~ae~~elastic tailored rotor blades in different boundary conditions	J Grundlach y Govers.	17 January 2019	In the present study results of a modal test compaign involving four identical rotor blades of 20M length. with geometric bend-twist Coupling are reported Design, realisation and post processing of the experiment have been carried out under careful consideration of pre-existing.

				FE shell modal
16	Stability analysis of wind bend-twist coupled blades	R. Riva M Spinelli L Sartori S Cassiola A Croce	3 July 2018	In the analysis the stability of a very large wind turbine where the BTC bend twist coupling is obtained by rotating the fibres of the SparCaps The study focuses firson the isolated wind turbine.
17	Reduced Design load basis for ultimate Blade Loads Estimation in multi disciplinary design optimi-sation framework	christian Povese carlo Tibaldi Torben J. Larsen Taesoong Kim. Kenneth Thomsen	7 May 2016	The aim is to provide a fast and reliable approach to estimate ultimate #o blade loads for a multidisaplinary design optimization (MIDO) framework. This work describes a method that allows integrating the calculation of the blade load envelopes inside an MDO loop.
18	Investigation of the effect of bending twisting coupling on the loads in Coined. turbines with sporelement blade	M O Gozen A Kayran	10 June 2014.	Inverse design of a referenle blade is performed such that sectional beam properties of NREL's 5MW turbine blade In-order to account for bending twisting coupling effect, dynamic supar effect, dynamic sup. of blade is created.

19	Effect of turbulance on power for Bend-Twist Coupleds blades	Alexandor R Stablein Morten H Hansen	7 May 2016.	This Paper Contains estimations of the power Curvetion non-linear time simulations a linear frequency domain based method and a normal distribution and weighted everage method.
20	light weight optional xotor design of a 10 MW-scale wind turbine using Possive load Control Methods.	Giannis Serafaim Dimitris Manolas Vasilis Riziotis. P.K Chariaropoulos	18 March 2020.	The Present Paper investigates the potential to redule the mass of the blade of the 10 MW DTV reference wind Turbine through build in, Material bend twist Coupling (BTC) It is materialisation by introducing an offset angle on the piles of the Metrial over the spar Caps of the blade.