

Lesson Plan

Name of the Faculty: Mr. Rohit Kumar Prasad

Discipline: Aeronautical Engineering

Semester: 5th

Subject: Aerodynamics II

Work Load (Lecture/Practical) per week (in hours): Lectures- 4 , Practicals- 0

Week	Theory		Practical	
	Lecture day	Topic (including assignment/test)	Practical day	Topic
1 st	1 st	Introduction to Conformal Transformation	1 st	
	2 nd	Complex potential function		
	3 rd	Blasius theorem		
	4 th	principles of conformal transformation		
2 nd	5 th	Kutta-Juokowaski transformation of a circle into flat plate, airfoils & ellipses	2 nd	
	6 th	Kutta-Juokowaski transformation of a circle into flat plate, airfoils & ellipses		
	7 th	Glauert's thin airfoil theory		
	8 th	symmetrical airfoil, cambered airfoil, flapped airfoil		
3 rd	9 th	determination of mean camber line shapes for uniform & linear distribution of circulation	3 rd	
	10 th	Description of flow about multi-element airfoils		
	11 th	Assignment 1		
	12 th	Downwash & induced drag		
4 th	13 th	Biot-Savart's law and Helmholtz's theorem	4 th	
	14 th	Prandtl's classical lifting line theory, fundamental equations		
	15 th	Elliptic lift distribution over finite un-swept wings		
	16 th	general lift distribution over finite un-swept wings		
5 th	17 th	effect of aspect ratio	5 th	
	18 th	Drag polar		
	19 th	Drag polar		
	20 th	Correlation of Cl distribution over other aspect ratios		
6 th	21 st	Lifting Surface theory	6 th	

	22nd	Lifting Surface theory		
	23rd	Formation Flying		
	24th	Ground effect		
7th	25th	Ground effect	7th	
	26th	Assignment 2		
	27th	Computation of flow field due to distribution of source doublet and line		
	28th	Computation of flow field due to distribution of source doublet and line		
8th	29th	horse shoe vortices	8th	
	30th	horse shoe vortices		
	31st	vortex lattice method		
	32nd	vortex lattice method		
9th	33rd	wing as a planar surface covered with HSVs	9th	
	34th	wing as a planar surface covered with HSVs		
	35th	Assignment 3		
	36th	Introduction to Delta Wing Aerodynamics		
10th	37th	Polhamus theory	10th	
	38th	leading edge suction analogy		
	39th	calculations of lift coefficient		
	40th	calculations of lift coefficient, flow field		
11th	41st	aspect ratio effect, leading edge extension	11th	
	42nd	HAA aerodynamics		
	43rd	The derivation of velocity potential equation		
	44th	The derivation of velocity potential equation		
12th	45th	Linearization	12th	
	46th	Linearization		
	47th	Prandtl-Glauert compressibility correction		
	48th	Prandtl-Glauert compressibility correction		
13th	49th	Karman –Tsien correction	13th	
	50th	Critical Mach number		
	51st	Whitcomb's area rule		
	52nd	Super critical airfoil		
14th	53rd	Super critical airfoil	14th	
	54th	Assignment 4		
	55th	Revision Class		
	56th	Class Test		
15th	57th	Revision Class	15th	
	58th	Revision Class		

	59th	Revision Class		
	60th	Revision Class		