

1. Record Nr.	UNINA9910815970503321
Autore	Nazzeri Rahmetalla
Titolo	Influence of flight control laws on structural sizing of commercial aircraft // Rahmetalla Nazzeri
Pubbl/distr/stampa	Gottingen : , : Cuvillier Verlag, , [2021] ©2021
ISBN	9783736965164 9783736975163
Edizione	[1st ed.]
Descrizione fisica	1 online resource (181 pages)
Disciplina	338.4762913334
Soggetti	Aircraft industry
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Intro -- List of Figures -- List of Tables -- List of symbols -- 1 Introduction -- 1.1 The need for a new simulation framework -- 1.2 State of the art -- 1.3 Objectives and thesis overview -- 2 Multidisciplinary analysis and optimization framework -- 2.1 Developed process and mixture of competences -- 2.2 General process overview -- 3 Loads calculation process -- 3.1 Scope of computed load conditions -- 3.2 Loads calculation model -- 3.3 Electronic Flight Control System -- 4 Structural property optimization and mass penalty estimation -- 4.1 Modeling aspects of global FEM representation -- 4.2 Global FEM external loading -- 4.3 Linear static analysis and results management -- 4.4 Wing structural property optimization -- 4.5 Fuselage mass penalty estimation -- 5 Feedback loop -- 5.1 Starting approach -- 5.2 Main process steps of the feedback loop -- 5.3 Update of stiffness values - equivalent beam approach -- 5.4 Update of mass values - grid point weight generator -- 5.5 Global convergence criteria -- 5.6 Impact of wing stiffness changes on the jig and flight shape -- 6 Design studies -- 6.1 Influence of the load alleviation function on the calculated flight loads -- 6.2 First design study with reduced load case set -- 6.3 Design study with complete load case set -- 7 Summary, discussion of methods and results, outlook -- 7.1 Summary -- 7.2 Discussion of methods -- 7.3 Discussion of results -- 7.4 Outlook -- Bibliography -- A Loads calculation and

structuralassessment -- B Feedback loop - main process steps -- C
Equivalent beam approach -validation -- D Equivalent beam approach
-influence of skin and stringer -- E Grid Point Weight Generator -
basics -- F Influence of the load alleviationfunction on the calculated
flightloads -- G Structural baseline generation -- H Influence of load
alleviation functionon structural components.
