The Ministry of Education and Science of the Russian Federation Samara State Aerospace University (National Research University)

CONCEPTUAL AIRCRAFT DESIGN

List of suggested books and references

SAMARA

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Conceptual Aircraft Design = Концептуальное проектирование самолетов [Electronic resource]: Term Project Guideline / The Ministry of Education and Science of the Russian Federation, Samara State Aerospace University; Compiler V.N. Mainskov. - Electronic text (54 kb). - Samara, 2011. - 1 CD-ROM.

The list of suggested books and references contains aviation periodical editions that are advised to get to know and learn while studying the discipline "Conceptual Airplane Design". Brief annotations and Internet addresses of periodical editions are offered.

Bibliographical descriptions of the educational literature that is in the University libraries and Internet addresses are given in addition to the list of books and sources from the course "Work program", the manual and method recommendations.

It is dedicated to the Masters programme «Designing, construction and CALS-technologies in Aeronautical Engineering» for education direction 160100.68 «Aeronautical Engineering».

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1. AVIATION PERIODICAL EDITIONS

• AeroJetStyle Site: http://www.aerojetstyle.ru

«AeroJetStyle» is published by the community of civil aircraft owners, pilot-amateurs and pilot-professionals, and just aviation enthusiasts. There is information and analytical materials about the general aviation (GA) and business aviation; reviews about air shows, up-to-date aviation technologies, issues of the aviation legislation, activities of enterprises that render air services, sell, repair and technical support for AF of private and corporate uses.

Aircargo Update

It includes:

- editorial issues of the day concerning developing of the airport business,
 airport managers interviews;
 - reviews of rapidly growing airports;
 - information about current exhibitions and conferences:
- descriptions of daily airport operations: designing and building activities, new equipment, handling baggage and freights;
 - trends and technologies of the airport business development;
 - retail and Duty Free at the airports, cargo service;
 - financial models.

• <u>Aircraft Economics</u> Site: <u>http://www.aircrafteconomics.com/</u>

The international publication devoted to corporate management issues, marketing, sales and financial management in the fields of production, repair and maintenance of aircraft and ground equipment. Also some issues of military equipment are covered.

• <u>Airline Business</u> Site: <u>http://www.airlinebusiness.com/</u>

The monthly international publication provides the exhaustive information about the largest cargo and passenger airlines, their activity news and reviews for the aviation business professionals. Commentaries and event analysis related to the financial situation on market, trends of developing freight and passenger transits over the world will help managers to assess the situation and make right decisions.

• Airline Cargo Management

Devoted to commentaries and articles published by the well-known journalists about topical problems of developing airline business, airports and air cargo operators.

• Airliner World (www.airlinerworld.com)

Airliner World is dedicated to bringing its readers the latest developments from across the global airline scene. It has a worldwide following comprising both industry readers and commercial aviation enthusiasts. For up-to-the-minute news and features on new leases, deliveries, technology, key industry personnel and airport developments from the airline scene make Airliner World your magazine of choice!

Aviation Week & Space Technology (www.aviationweek.com)

Serving over 1.2 million professionals in 185 countries, AVIATION WEEK is the largest information and services provider to the global commercial, defense, maintenance/repair/overhaul (MRO), space and business aviation communities and plays a critical role in connecting industry professionals worldwide. Anchored by its flagship Aviation Week & Space Technology, AVIATION WEEK continues to grow and evolve its portfolio to meet the needs of the industry. With the developments of higher value analytical tools - Aviation Week Intelligence Network (AWIN), MRO Prospector and Top Performing Companies (TPC) - markets and customers are empowered with the essential data they need. AviationWeek.com, along with the events series, enable communities of buyers and sellers to connect more frequently, providing marketers with new media opportunities. AVIATION WEEK continues to

expand in the defense sector as well as in emerging markets including India, the Middle East and Asia/Pacific.

• <u>Bizavnews</u> Site: <u>http://www.bizavnews.ru</u>

Business aviation information portal.

Topics: manufacturers, airports, brokers, operators, safety and legislation.

• Cargo Village News

Published by the Department of Civil Aviation, Dubai. The publication is the most authoritative in the Middle East region. The publication sets out the Persian Gulf States point of sight about developing the freight service in this region and over the world. Most of the regional companies perceive these articles as a guide to action of their operational work. Topics: aviation conferences, special article, air transportation, insurance, news, international airports, trade.

• China Civil Aviation

Topics: Airport, Air transport, Aviation support, corporate culture, special article, special focus.

• Flight International Site: http://www.flightglobal.com/

The leading international weekly edition of the aerospace industry is over 90 years. The magazine covers all issues related to the aerospace industry, offers on-line information and reviews about business aviation, new technologies in the space field, ranks the leading carriers. Topics: Air transport, business, defense, passenger transportation, freight transportation, technologies, space flights, companies, news

• Jet Site: http://www.jetmedia.ru/

The "Jet' magazine is the inside and outside views on the past, present and future of the business aviation, and all information that may be useful for businessmen who use jets for business and rest. Topics: business aviation news in

Russia and abroad; the legislation nuances in different countries; business analytics, forecasts, statistics, retrospective; expert opinions on topical issues of the industry; aircraft production news, design, high techs, business-terminals service in Russia and abroad, the history of aviation and etc.

• **Top Flight** Site: http://www.topflight.ru/

The magazine covers the world business aviation events, gives information about the changes and market trends, analytics and statistics, as well as considers the topical issues of the private aircraft ownership.

• <u>ABИAГЛОБУС</u> (AVIAGLOBUS) Site: http://www.aviaglobus.ru/

AVIAGLOBUS is the magazine of the aviation present and future. It briefly provides survey, analysis and generalization of information about the global aviation industry achievements and the state of air transportation market. It covers the most significant news and reliable information about important industry events, world and CIS leading airlines activities, airports, TMR centers; data on the flight safety and security, training staff and customer service. Scientific and technical publications complement the technical and design documentation and are agreed with the relevant design bureaus and Aviation Administration.

• <u>Авиапанорама</u> (Aviapanorama) Site: http://www.aviapanorama.info

The magazine covers issues of Russian aerospace industry. Topics: Science and technology, life cycle, safety and insurance, abroad, future books pages, etc.

• <u>Авиасалоны мира</u> (World Air Shows) Site: http://www.airshows.ru/

World Air Shows is a magazine for business that has been published since 1999. This magazine is read by the presidents and directors of aviation and space enterprises, government representatives, top managers, chief engineers and engineers of aerospace engineering companies. Topics: civil aviation, military aviation, helicopters, engines, space industry and research, aircraft equipment,

airports, airlines and air transportation, materials and technologies, personnel, loans, leasing and insurance.

• <u>АвиаСоюз</u> (AviaUnion) Site: <u>http://www.aviationunion.ru/</u>

Informs the aviation community about cooperation between Russia and CIS countries in the aircraft industry. CIS joint projects in the aviation and space fields. The state and legislative support of aerospace activities. Topics: Russian and CIS aircraft production, joint projects, air transport, general aviation, flight safety, space news, international aviation reviews, aviation and space history, sport aviation and etc.

• <u>Авиатранспортное обозрение (ATO)</u> (Air Transport Review) Site: http://www.ato.ru/

The magazine is for top and mid-level management. Topics: airlines news, industry news, airports news; topical reviews.

• <u>Авиационный рынок: информация, новости, комментарии</u> (Aviation Market: Information, News, Commentaries) Site: http://www.rusaero.ru

The periodical edition (Bulletin) covers a wide range of air transport problems. Focused on the management of airlines, airports, research-and-development organizations, the government management and regulatory structures of air transport, etc. Topics: federal legislative and executive power news, Russian civil aviation, world airline news, mutual settlement system, automated reservation and booking systems, airports, aviation Insurance, articles on air transport topical issues, special section "Our interlocutor" (interviewing the heads of Air transport enterprises and organizations).

• <u>Авиация и Время</u> (Aviation and Time) Site: http://www.aviation-time.kiev.ua/

The magazine in detail and with great accuracy describes aircraft, their

combat use in the world wars and regional conflicts, their commercial use, the outstanding airmen, regularly publishes memoirs. Much attention is paid to events in the current aviation life and the development prospects of aviation, aircraft modeling. Each publication contains large-scale drawings, over 100 pictures, historical aircraft coloring variants. Topics: Monographs, air shows, aero archive, aviation in local conflicts, eyewitness, panorama, home aviation museum.

• <u>Авиация и космонавтика: вчера, сегодня, завтра</u> (Aviation and Cosmonautics: Yesterday, Today, Tomorrow)

The popular science magazine sponsored by Russian air force: history, current state and prospects of the aviation and missile technologies.

• <u>Авиация и спорт</u> (Aviation and sport) Site: http://www.avia-s.ru/

The magazine supporting the state scientific-technical policy, covering economical issues, problems and prospects of development of sport, civil and military aviation, general aviation, research institutes, design bureaus, manufacturers, airlines, airports, flight clubs, repair plants, educational institutions, trade and insurance companies. It widely covers the latest developments and innovations in aviation and technology industries, airline shows, naval shows, exhibitions and conferences in which the magazine takes an active part. As a result of these events, it aims to acquaint readers with innovations in the aviation and weapon fields.

• <u>Авиация общего назначения</u> (General aviation) Site: http://www.aviajournal.com

Everything about global and domestic achievements in this field, experience in the development, certification, manufacture and operation of aircrafts designed for flight clubs and private pilots, flying clubs and public organizations activities, GA problems in CIS and ways of solving them in different countries are covered. Topics: Airplanes, Helicopters, Ultra-light airplanes, Gliders, Paragliders, Market,

Economy, Enterprises, Flight clubs, Help, Laboratory, Sharing experience, Competitions, Airdrome and etc.

• <u>Авиация, космос, вооружение</u> (Aviation, Space, Weapons) Site: http://www.itar-tass.com

On-line information about the situation for the defense industry of Russia and leading countries.

• Аэрокосмический курьер (Aerospace Courier)

The magazine is aimed at those who make decisions. Topics: Issue of the day, Science and production, Air transport, Economics and finance; Expo, Portrait, Sport, History and the present; Abroad.

• <u>Аэрокосмос</u> (Aerospace) Site: <u>http://www.itar-tass.com</u>

The weekly review of Russian and foreign press. Topics: Military aviation, Civil aviation, Rocket and space technologies, Engine production, Air transport, Aerospace industry, Exhibitions.

• <u>Вертолет</u> (Helicopter) Site: <u>http://www.vertolet-media.ru</u>

The magazine for the top and mid-level management. Topics: Safety, Maintenance, Design, Economics, History, Manufacture, Repair and etc.

• Вестник авиации и космонавтики (Aviation and Space Herald)

Topics: Aviation industry, Military aviation, Civil aviation, Flight safety, Cosmonautics, Air defense, Aircraft repair plants of CIS, Air shows and exhibitions, Aviation and space exploration history, activities of Russian Defense Technical Sport Organization, Literary page, Special publications 1-2 times per year

• **Вестник воздушного флота** (Air Fleet Herald)

Covers the state policy in the field of aviation and astronautics. Topics: Military and civil aviation, Aircraft industry of the XXI century, Our priorities and etc.

• Взлёт. Национальный аэрокосмический журнал (Take-off. National aerospace magazine) Site: http://www.take-off.ru/

News and events, overview and analytical data of various aspects and problems of developing and operating aviation and space technologies, interviews with the leading news-makers in the aerospace field. Topics: Events, Industry, Contracts and supplies; Civil Aviation, Military Aviation, Flight Safety, Cosmonautics, Air shows and etc.

• **Воздушный транспорт** (Air Transport)

The newspaper for airmen and aviators. Topics: Airlines, Aero courier, Airport, Business card, High-tech, Globe, Space, History pages, Cooperation, Tourism and rest.

• **Воздушный флот** (Air Fleet)

News and problems of Russian civil aviation. Topics: Interview, World of aviation, Flight safety, CIS sky, Panorama, A long time ago.

• Гражданская авиация (Civil Aviation)

Topics: Issue of the day, Interview, Panorama, Events, Airlines news, Experience, Exhibitions, Science, Engineering, Aviation Medicine, World Air transport, World airports, International Cooperation, Educational Institutions, Unclassifying, Memory, Distant and close, Destinies, Cry from the heart and etc.

• <u>ДЖЕТ КАТАЛОГ</u> (Jet Catalog) Site: <u>http://www.jetcatalogue.ru/</u>

The aim of the catalog is to provide business jet and helicopter buyers with the most relevant and useful information that allows them to make the right choice. Each section contains all business aviation models and their detailed specifications, architectural interior options, flowcharts. There are also summaries of each airplane or helicopter for the prospective owners or companies and private persons who use business aviation services.

The publication provides information about the leading companies that produce aircrafts. The leading experts from "Jet" in Russia, USA, UK and Switzerland were attended in developing this catalog. A new edition, which has no analogues in the world, includes two main sections: airplanes and helicopters. Now all business aviation models are located in one directory.

• История авиации (Aviation History)

The magazine publishes all kinds of information related to the creation, use and maintenance of aircraft and also the information about aviation community people: engineers, pilots, technicians, etc.

• <u>Крылья Родины</u> (Homeland Wings) (<u>www.kr-magazine.ru</u>)

The main task of the magazine is to inform readers about the current state, the development prospects and the national and world aviation problems.

The main feature of the magazine corresponds to its traditional direction and lies in the special attention (larger than other aviation magazines) to the life and business activities of aircraft developers and manufacturers, and the history of the domestic aviation. The significant attention is paid to the engine issues. The editors are members of AAEM (the section "Our Partners").

The problematic articles of developing domestic aircraft industry and the work of individual design bureaus play the important role. Typically, they occupy the front pages of the magazine. In general, there are new researches on various aircraft types and their power plants, articles on their production, development and implementation of new processes, new materials, tools and instruments.

Some articles in the magazine contain the biographical material about the prominent figures of the domestic aviation (scientists, designers, business leaders, pilots and etc.), the development of aviation technology and industry areas in the Soviet Union and Russia.

Much attention is given to stories about air shows and air exhibitions. The magazine widely publishes the special thematic issues devoted to the anniversary dates of the enterprises, design bureaus, institutions and prominent figures of aviation (the section "Archive").

A new and important direction is the overview of Russian airports and airlines activities, the prospects for their development, new aircrafts and equipment supplement (the section "Our Partners").

• **<u>Mup Авиации</u>** (Aviation World)

According to western experts, it is the best magazine in Russia in this field. Topics: Aviation names, Airframes; Events, Aviation in wars, History of aviation units.

• <u>Cамолет</u> (Airplane)

Topics: Science, Management, Economics, Production, Digest, Aviation history

<u>УКРИНФОРМ: новости ВПК, авиации и космонавтики</u> (Ukraine forum: military-industrial complex news, aviation and cosmonautics) Site: http://www.news.ukrinform.com.ua/</u>

The aim is to provide the most complete and reliable information about the defense industry, aviation and space exploration. Topics: Official Section, Rocket and Space Complex, Armored and artillery force, Air force and aircraft production, Navy force and shipbuilding, Markets and the international arms trade, Military budgets and balance sheets, World of new developments, aircraft and space

objects, Military-industrial complex and conversion; Exhibition scheldure, Presentations, Announcements of events.

2. EDUCATIONAL AND REFERENCE LITERATURE

- 1. Airplane design /S.M. Eger [and others.] M.: Mashinostroenie, (1983), 2005.-616 p.
- 2. Torenbik E. Subsonic airplane design /E. Torenbik M.: Mashinostroenie, 1983. 648 p.
- 3. Shejnin V.M. Weight design and efficiency of civil airplanes /V.M. Shejnin, V.I. Kozlovskiy M.: Mashinostroenie, 1984. 552 p.
- 4. Myshkin L.V. Forecasting the development of aviation: theory and practise.- M.: Fizmatlit, 2006. 304 p.
- 5. Zhitomorskiy G.I. Airplane constructions: textbook for students of aviation specialties/ G.I. Zhitomirskiy M.: Mashinostroenie, 1991 (1st ed.); 1995 (2nd ed..); 2005 (3rd ed.).
- 6. Mechanical engineering. Encyclopedia. Volume 1V-21. Airplanes and helicopters. Book 2. Design, frames and systems of airplanes and helicopters./ edited by A.M. Matveenko M.: Mashinostroenie, 2005.-752 p.
- 7. Komarov V.A. Construction and design of aircraft lifting surfaces: manual/ V.A. Komarov-Samara: SSAU, 2002 96 p.
- 8. Mikeladze V.G. The main geometric and aerodynamic characteristics of airplanes and rockets: reference book /V.G. Mikeladze, V.M. Titov M.: Mashinistroenie, 1982. 149 p.
- 9. Vislov I.P. Design of light and ultra-light aircraft: manual/ I.P. Vislov
 Samara: Samara State Aerospace University, 2005. 114 p.
 - 10. Korol'kov O.N. The equation of airplane existence: manual/ O.N. Korol'kov Samara: SSAU, 2000. 31 p.
- 11. Uniform norms of the civil aircraft airworthiness. M.: CAHI pub.h., 1985. 470 p.
- 12. Joint Aviation Regulations, part 25/ Uniform norms of the transport aircraft airworthiness: IAC, 1994.

- 13. Joint Aviation Regulations, part 23/ Uniform norms of the civil light aircraft airworthiness: IAC, 1991.
- 14. Zrelov V.A. The main parameters of domestic turbo-jet engines and its application in educational design project: manual/ V.A. Zrelov, V.G. Maslov Samara: SSAU, 1999. 160 p.
- 15. Foreign aviation engines / edited by. V.A. Skibin, M.: CIAM, ed.14 (copy), the department manual, 2005. 200 p.
- 16. Napadov A.P., Napadov K.A. Aviation engines of the 90s. SSAU, Samara, 2006.
- 17. Mechanical engineering. Encyclopedia. Volume 1V-21. Airplanes and helicopters. Book 1. Aerodynamics, flight dynamics and durability / edited by A.M. Matveenko M.: 2005 800 p.
- 18. Korol'kov O.N. Design of local strengthening airframe units: manual / O.N. Korol'kov Samara: SSAU, 1997. 64 p.
- 19. Crew survival equipment / S.M. Alekseev, J.V. Balkind, A.M. Gershkovich (и др.) M.: Mashinostroenie, 1975 431 р.
- 20. Shejnin B.M. Problems of passenger airplanes design/ V.M. Shejnin, V.I. Kozlovskiy. M.: Mashinostroenie, 1972. 308 p.
- 21. Theory and practice of civil airplanes design/ edited by G.V. Novozhilov M.: Nauka(Science), 1976, 439 p.
- 22. Kerber L. L. Airplane equipment layout/ L. L. Kerber M.: Mashinostroenie, 1976.
- 23. Eger S.M. Aeronautical engineering foundations / S.M. Eger, A.M. Matveev, I.A. Shatalov. M.: MAI, 2003. 720 p.
- 24. Badyagin A.A. Airplane design / A.A. Badyagin, S.M. Eger, V.F. Fomin and etc.. M.: Mashinostroenie, 1972. 513 p.
- 25. Bowers P. Unconventional aircraft / P. Bowers Blue Ridge Summit, PA: 1990 (eng) | M.: Mir, 1992 (rus). 320 p.
- 26. Yurovitskiy M.I. Cockpit layouts of passenger airplanes. M.: Mashinostroenie, 1988.- 208 p.

- 27. Choosing optimal parameters of the stepped wing with account for the weight and aerodynamic efficiencies / A.A. Vyrypaev, D.M. Kozlov, V.A. Komarov, A.S. Kuznetsov; Samara State Aerospace University. − Samara, 2010. − 40 p.: 23 fg. − Bibl. 16 items − Rus. − Dep. in AUISRI 28.01.2010 №45-B2010
- 28. Technical information, Central AeroHydrodynamic Institute (TsAGI). 1990 2010 Γ.Γ.
- 29. Raymer D.P. Aircraft design: A Conceptual Approach, AIAA Educational Series, Washington, DC, 1989, –745 p.
- 30. Eger S.M., Liseytsev N.K., Samoylovich O.S. The basis of computeraided airplane design: textbook for students of aviation specialties./S.M. Eger, N.K. Liseytsev, O.S. Samoylovich. M.: Mashinostroenie, 1986. 232 p.
- 31. Borgest N.M. Automation of airplane preliminary design. Manual. Samara: CAH, 1999. 92 c.
- 32. D. Strohmeyer and R. Seubert. Improvement of a Preliminary Design and Optimization Program for the Evaluation of Future Aircraft Projects. Reprint of the 7th AIAA/USAF/NASA/ISSMO Symposium on Multidisciplinary Analysis and Optimization, St. Louis, Sept. 15-18, 1998. AIAA Paper 98-4828.
- 33. Buryakov A.A. Conceptual tasks of fuselage geometric shape design with the aid of modern software. E-magazine «The applied geometry», ed.7, № 15 (2005), p.39-51.
- 34. Abramov Y.V. Methodology for creating space distribution models of complex technical objects in CAD/CAM/CAE environment// The material of the Intern.Conf.«The design systems of process preparation and life-cycle stage management of manufactured products»// CAD/CAM/PDM 2001: -M.: Stankin, 2001, -p.70-82
 - 35. Aviation sites:
 - 35.1 http://www.cofe.ru.avia/
 - 35.2 http://www.airwar.ru/
 - 35.3 http://www.warplane.ru/
 - 35.4 http://www.airx.ru/

- 35.5 http://www.avia.claw.ru/
- 35.6 http://www.aviapediya.ru/
- 35.7 http://www.combatavia.info/
- 35.8 http://www.flymachines.ru/
- 35.9 http://www.airwiki.ru/
- 35.10 http://www.pro-samolet.ru
- 35.11 http://adg.stanford.edu/aa241/AircraftDesign.html
- 35.12 http://www.aviaros.narod.ru/
- 35.13 http://www.avia.ru.ru/
- 35.14 http://www.airliners.net/
- 35.15 http://www.aex.ru/
- 35.16 http://www.rusjet.ru/
- 35.17 http://www.avialibrary.com/