

## PROSPECTS IN AEROSPACE ENGINEERING

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Sri Lankan graduates have not integrated into the Aerospace Engineering in systematic way due to lack of direction / guidance.

It is necessary to prepare the undergraduate so that they have the basic knowledge of Aeronautical engineering . The aeronautical engineers will have to be specialised in either aircraft systems, Airframes, Structures, Engine or Radio and Instruments.

This means that introduction of aircraft dynamic, structures in mechanical engineering dept. will have to be in parallel with introduction of optional subjects on radio, instruments and electrical (Avionics) and aircraft basics for electronics/ electrical undergraduates.

If I look at the scope of knowledge that a student doing studies on aeronautics should have the following areas are useful. Cold Working - as you know the aircraft structure is fabricated mainly using fasteners. The origin of failure normally is at fastener holes. The prevention is by cold working. The principle and procedure are important.

- Metallurgy
- fatigue failures
  - Alloys, and heat treatment
  - Corrosion
  - Shot Peening
  - Prevention of corrosion
  - NDT procedures eddy current, 'X' - ray, dye penetration, ultrasonic, visual

Today the tendency of aircraft manufacturers is to use non metallic materials, such as , fibre glass ,carbon fibre materials to reduce weight and thereby reduce fuel costs.

Why I have mentioned above subjects is to stress on the fact that strength of materials and workshop technology syllabus can be reviewed to ensure that related materials, are included in the relevant areas. For example in mechanical engineering the principles of steel and steel based alloys including the hardening procedures are looked at. These areas need expanding to include aluminium based alloys and hardening procedures. In aeronautical industry multiple standards such as MS, LN, MIL specs, NAS, Boeing, Lockheed, Air Bus Industrie standards , etc are used. Even the engineering drawing titles can include A/C based components. As for

the mechanical engineers oriented in aeronautical industry the potential is expanding both locally and globally. In Sri Lanka, Department of Civil Aviation recruits engineers through ESB.

These engineers oversee operational and engineering requirements of aviation industry and set the required standards. In addition, the Sri Lankan Airlines recruits graduates and retrain as and when required. The non availability of aeronautical graduates is a drawback to the industry. With the expansion of private airlines, aviation training schools and Defence industry, the demand for aeronautical engineers is bound to increase. Globally the prospects are good with anticipated increase in air travel. Already Sri Lankan engineers are working with Air Craft manufactures, such as Air Bus Industry, Boeing and Engine manufacturers Rolls Royce.

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The writer of above article is presently employed at SriLankan AirLines Engineering as Asst. Eng. svcs. Manager and head the Structures and Interior Group of the section. He joined SriLankan AirLines in 1985 and has been trained locally and at Boeing and Airbus Industrie on A/C structural repairs. He passed out from Moratuwa University in 1975.