Thermo-structural analysis of Integrated Vacuum Vessel of LIGO-India Vacuum Integrated System Test Assembly (LI-VISTA)

Abstract

LI-VISTA facility being developed at IPR Gandhinagar which consist of Vacuum vessel of 10 m x 2 Nos. Bellows, dished end, Large Size (1250 mm) Gate Valve & Vacuum Equipment etc. Integrated assembly will remain in ultra-high vacuum condition and will be baked at 150 ± 10 C to improve vacuum performance of system. Orientation of Large Size Gate valve may be vertical or horizontal in integrated condition. A FE based structural, Thermal, Vibrational analysis is required to identify the various stress & deformation arising during that under different loading condition of large size gate valve.

The Project work Involve followings:

1. Study the Existing Integrated Vacuum vessel
2. Study of Design consideration
3. FE modelling of Vacuum vessel & analysis

This project also include modelling in solid work/Design Modular or Space claim, FE Analysis, Understanding of ASME Codes, Report drafting.

Academic Project Requirements:

1) Required No. of student(s) for academic project: 2

2) Name of course with branch/discipline: B.E./B.Tech. Mechanical Engineering

3) Academic Project duration:

(a) Total academic project duration: 10 Weeks
(b) Student's presence at IPR for academic project work: 4 Full working Days per week

Email to: atulprajapati@ipr.res.in[Guide's e-mail address] and
project_me@ipr.res.in [Academic Project Coordinator's e-mail address]

Phone Number: 079 -07923962174 [Guide's phone number]