NUMBER OF SEATS
Total number of seats is limited to about 20. Further, first-come first-served basis will be used to fill these seats. Lastly, the seats will be suitably distributed among the educational institutes, Govt. R&D organizations, Public Sector Undertakings and Private Industries, as per the response received.

PRE-REGISTRATION
Organizations / individuals desirous of participating in this course are required to pre-register by sending a communication (i.e. letter/fax/email) latest by 19th May, 2017.

REGISTRATION CONFIRMATION
Participants are required to confirm their registration by sending the completed Registration form, along with the course fees, to the course coordinator, latest by 02nd June, 2017. Fees must be paid by a demand draft/Bank Transfer, in favour of “Registrar, IIT Bombay (CEP A/c)”. Kindly note that no income tax is to be deducted at source from the course fee payments as IIT Bombay is exempted from the same. For on-line payments, please click here for Bank Details.

BOARDING AND LODGING
Guest House facility in the campus is available for limited number of participants on payment basis as per the actuals and with advance request. All provisionally registered participants will be kept on waiting list and will be provided accommodation subject to its availability on their arrival.

COORDINATOR’S PROFILE
Prof. Ashok Joshi has over fifteen years of experience in teaching mechanics of space systems at both undergraduate and postgraduate levels.

ADDRESS FOR COMMUNICATION
Prof. Ashok Joshi, (Course Coordinator)
Dept. of Aerospace Engineering, IIT Bombay,
Powai, Mumbai - 400 076
Tel. : 022 - 2576 7113, 25767102 (O)
Fax. : 022 – 25722602
Email. : ashokj@aero.iitb.ac.in

Indian Institute of Technology, Bombay
Continuing Education &
Quality Improvement Programmes

Announces a Short Term Course On
Introduction to Space Flight Mechanics

During
June 19 - 23, 2017

Course Coordinator

Prof. Ashok Joshi
Department of Aerospace Engineering
INTRODUCTION
In the last two decades, space systems e.g. launch vehicles, satellites, space probes and space stations etc., are increasingly being employed for various types of missions that include communication, navigation, entertainment, resource mapping, surveillance, as well as exploration of our planetary system for future human habitat. The design of such systems for carrying out these tasks requires understanding of the basic mechanics of launch vehicles and spacecraft. The present course provides basic background on launch vehicle trajectories, their design, satellite orbital motion, interplanetary & return missions etc., in order to help the beginners in this field understand implication of various concepts and methodologies applicable to mechanics of space systems as well as to help develop simple analytical tools for predicting the overall mission profile of such objects.

COURSE COVERAGE
Introduction to space missions, role of ascent, orbital and return missions, Mathematical model for general ascent mission, Rectilinear and gravity turn trajectories, Single and multi-stage launch vehicle systems and their configuration design. Introduction to basic orbital problem, Two-body problem formulation and Kepler's laws, Classical orbital elements, Orbit determination from initial conditions, Position & velocity prediction from orbital elements, Different types of orbits, Perturbation due to Earth oblateness, Solar radiation pressure effect on orbits, Non-Kepplerian formulation including elements of restricted 3-body problem, Sphere of activity and Roche limit. Introduction to orbital manoeuvres e.g. Orbit raising manoeuvres, Hohmann & low thrust transfer manoeuvres, Orbit inclination change manoeuvre, Orbit perigee argument change manoeuvre,. Introduction to inter-planetary missions, departure and arrival concepts including planetary capture manoeuvre, Launch to orbit (SSTO, TSTO missions), Rendezvous and docking manoeuvres, Launch window concept and reentry trajectories.

FACULTY
Prof. Ashok Joshi (ashokj@aero.iitb.ac.in), Aerospace Engineering Department

PRE-REQUISITES
The course does not have any formal pre-requisites. However, familiarity with basic calculus (differential & integral) and numerical analysis techniques will be useful.

FACILITIES
Participants will be provided Laptops for use during the course.

VENUE
Seminar Hall, Jal Vihar Guest House

WHO MAY BENEFIT
The course is for all those who are desirous of acquiring basic background in the mechanics of space systems including, launch trajectories, spacecraft orbits and inter-planetary mission trajectories.

COURSE FEES
Course fee (Inclusive of 15% service tax) per participant will be as follows.
Rs. 20000/- for Educational Institutions
Rs. 25000/- for Govt. R&D Organizations
Rs. 30000/- for Public Sector Undertakings
Rs. 35000/- for Private Industries

Fee, which includes soft copies of course material, tea & working lunches on all the days, is not refundable. However, substitution of participants is possible if notified sufficiently in advance.
IIT BOMBAY, OFFICE OF CE&QIP

REGISTRATION FORM
Introduction to Space Flight Mechanics (SpaceMech_17)

June 19 - 23, 2017

NAME (PRINT):
______________________________________________________
__________________________________________  Gender: M / F

DESIGNATION:
______________________________________________________

ORGANIZATION:
______________________________________________________

MAILING ADDRESS:
______________________________________________________
______________________________________________________
______________________________________________________

TELEPHONE:__________________ (O)  _________________ (R)
FAX: __________________  MOBILE: _____________________

EMAIL : _______________________________________________

QUALIFICATIONS :_______________EXPERIENCE :  ______ Yrs.

IIT Guest House accommodation REQUIRED / NOT REQUIRED

PAYMENT:  D.D. No.:
Dt.    Rs.

[Demand draft should be drawn in favour of "The Registrar, IIT Bombay
(CEP A/c)"].

Date:  Signature of Applicant

*Guest House bill to be paid directly by the participant.

(XEROX ADDITIONAL COPIES OF THIS FORM, IF NEEDED)