Pakistan Space and Upper Atmosphere Research Commission

Professional Development Short Course

ASTRODYNAMICS AND FLIGHT DYNAMICS

May 7-11, 2007

Course Outline

Day	*Date*	*#*	*Session Topic*	*Timings*
Monday	**May 07**	**01**	**Introductory Session**	**0900-0945**
		02	**Problem-Solving Techniques**	**0945-1030**
		03	**Projectile Dynamics, Orbital and Escape Velocities, Geostationary and Polar Satellites, Satellite-Launch Vehicle (SLV), Satellite and. SLV Orbits**	**1100-1145**
Tuesday	**May 08**	**04**	**Down-Range and Cross-Range Error for Short-Range Projectiles**	**0900-0945**
		05	**Mathematics of Inertial-Navigation and Telemetry Systems**	**0945-1030**
		06	**Review of Lagrangian and Hamiltonian Dynamics**	**1100-1145**
Wednesday	**May 09**	**07**	**Two-Body Problem in the Plane-Polar-Coördinate Mesh**	**0900-0945**
		08	**Two-Body Problem in the Elliptic-Astrodynamical-Coördinate Mesh**	**0945-1030**
		09	**The Hohmann-Transfer Orbit**	**1100-1145**
Thursday	**May 10**	**10**	**Control Laws (the Cross-Product, the Extended-Cross-Product, the Normal-Component-Cross-Product, the Dot-Product, the Normal-Component-Dot-Product and the Ellipse-Orientation Steering)**	**0900-0945**
		11	**Guidance Schemes (the Delta Guidance, the Lambert and the Inverse-Lambert Scheme, the Q, the Inverse-Q and the Multi-Stage-Q System)**	**0945-1030**
		12	**Three-Body Problem and Stability of Satellites**	**1100-1145**
Friday	**May 11**	**13**	**Problem Discussion/Software Demonstration**	**0900-0945**
		14	**Concluding Session (Course Summary)**	**0945-1030**

Web address of this document: https://www.ngds-ku.org/Astrodynamics/SUPARCO.pdf