

226705 STELLAR ASTROPHYSICS 1

(ฟิสิกส์ดาราศาสตร์ดาวฤกษ์ 1)

Number of Credits: 3

Course Description :

Physics in stellar atmospheres, the structure of stars, pre main sequence stellar evolution and post main sequence stellar evolution.

Course Objective :

Students will be able to describe and discuss physics in stellar atmospheres, the structure of stars, pre main sequence stellar evolution and post main sequence stellar evolution.

Course Contents	No. of Lecture Hours
1. Physics in stellar atmospheres	
1.1 Radiation pressure in stellar atmospheres	3
1.2 Local thermodynamic equilibrium	2
1.3 Absorption coefficient	2
1.4 Limb darkening	2
1.5 Plane-parallel atmosphere	2
1.6 The structure of stellar spectral lines	2.5
2. The structure of stars	
2.1 Pressure gradient	3
2.2 Mass conservation equation	3
2.3 Stellar Energy	3
2.4 PP chain and CNO cycle	2
2.5 Energy transport and adiabatic convection	2.5
3. Pre main sequence stellar evolution	9
3.1 Interstellar dust and gas	
3.2 The formation of protostars	
3.3 Hayashi track	
3.4 Herbig-Haro objects	
4. Post main sequence stellar evolution	9
4.1 Main sequence stars	
4.2 The Schonberg-Chandrasekhar limit	
4.3 The fate of stars	
Total	45

