Course Code	PHY8410	* Teaching Hours	48	* Credits	3
* Course Name	English Introduction to High Energy Density Physics				
* Instruction Language					
* School					
Prerequisite					
Instructors	Name	Title	Department	E-mail	
				wengsuming@sjtu.edu.cn	
* Course Description					
* English Course Description	This course is intended for graduate students and senior undergraduates who are interested in pursuing scientific research related to fundamental high energy density science, inertial confined fusion, plasma astrophysics, and other related fields. High energy density systems often refer to matter states with energy density higher than 10^{11}J/cm^3 or with pressure higher than one megabar. They exist widely in our universe, such as the early stage of the big bang, stars, and inner cores of planets, etc. In laboratory, one produces high energy density states of matter with pulsed high power drivers such as lasers and microwave pulses, pulsed currents, and high energy and high current particle beams from accelerators. High energy density physics is the common disciplinary foundation for important applications such as inertial confined fusion, strong impact dynamics, equations of state under ultra-high pressures, laboratory astrophysics, and laboratory simulation of nuclear weapon physics . Through this course, students will learn fundamental physics and analytical methods in the field of high energy density physics such as impact dynamics, electromagnetic fluid dynamics, plasma fluids and radiation hydrodynamics, and build a solid and broad background knowledge system for subsequent scientific research in the fields of laser fusion				

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<tr><td></td><td colspan="4">and laboratory astrophysics.</td></tr>
<tr><td rowspan="10">* Schedules</td><td>Content</td><td>Hours</td><td>Format</td><td>Instructor</td></tr>
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Kelvin–Helmholtz
Richtmyer–Meshkov</td><td>6</td><td></td><td></td></tr>
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<tr><td>* Grading Policy</td><td colspan="4">Attendance ( ) 10%, Homework 25%, Research Report 30%, Final Examination 35%.</td></tr>
<tr><td>* Textbooks & References</td><td colspan="4">1. “High-Energy-Density Physics: Foundation of Inertial Fusion and Experimental Astrophysics” R. Paul Drake, Springer (2006 First Edition).
2. “High-Energy-Density Physics: Foundation of Inertial Fusion and Experimental Astrophysics”, R. Paul Drake, Springer (2018 Second Edition).
3. --- R. Paul Drake 2013
4. “The Physics of Inertial Fusion” , S. A. Atzeni and J. Meyer-ter-Vehn, Clarendon Press,</td></tr>
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	2004. 5. “Plasma Astrophysics, Parts I and II”, B. V. Somov, Springer (2006),
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