

1	Title	Semiconductor Power Devices	
2	Lecturer, Units	Ichiro Omura	2
3	Purpose	Semiconductor Power Devices are widely used in energy management and power control such as motor drive circuits and power supplies. The lecture includes topics of semiconductor physics, device design of power MOSFET, IGBT and PiN diodes, reliability, device packaging technology.	
4	Lecture schedule	<ol style="list-style-type: none"> 1. Power electronics and power devices 2. Basics of semiconductor physics 1 3. Basics of semiconductor physics 2 4. Formulation of power device design 5. Breakdown voltage design 6. PN-diodes 7. PiN-diodes 8. Power MOSFETs 9. IGBT 10. High power IGBT 11. Edge termination design 12. Safe operating area 13. Cosmic ray induced failure 14. Future of Power devices 15. Report presentations 	
5	Evaluation	Group project activity and presentation	
6	Note		
7	Textbook Reference	Handout A. Grove, "Physics and Technologies of Semiconductor Devices," John and Wiley & Sons.	