

## 111 The Class Curriculum planning of Ph. D. Program in Engineering and Science

Required Courses	Research Fields	Professional Courses	
Construction Seminars (four semesters)  Thesis Seminar (start at 3rd year)	Internet of Things	<ul style="list-style-type: none"> <li>● WirelessNetwork</li> <li>● Cloud Computing and Program Design</li> <li>● Database System</li> </ul>	<ul style="list-style-type: none"> <li>● Sensing Technology for IoT</li> <li>● Internet of Things-Therory and Implementation</li> </ul>
	Mechatronics	<ul style="list-style-type: none"> <li>● Linear System</li> <li>● Advanced Mechanics of Materials</li> <li>● Advanced Engineering Materials</li> <li>● Advanced Thermal-Fluids Engineering</li> <li>● Smart Manufacturing</li> </ul>	<ul style="list-style-type: none"> <li>● Green Energy Engineering</li> <li>● Finite Element Method</li> <li>● Vibration</li> <li>● Numerical Analysis</li> </ul>
	Artificial Intelligence	<ul style="list-style-type: none"> <li>● Imaging System</li> <li>● Wavelet Transform and Its Applications</li> <li>● Computer Vision</li> <li>● Evolutionary Computation</li> <li>● Digital Signal Processing</li> <li>● Fuzzy theory</li> <li>● Neural Networks</li> <li>● Big Data Analysis and Applications</li> </ul>	<ul style="list-style-type: none"> <li>● Multimedia System</li> <li>● Digital Filter</li> <li>● Machine Learning</li> <li>● Computer Algorithms</li> <li>● Pattern Recognition</li> <li>● Special Topics of Artificial Intelligence</li> <li>● Deep Learning</li> <li>● Advanced Probability and Statistics</li> </ul>

Note : 1. Required courses are not included in course credits for graduation.

2. Every student must complete at least 21 course credits for graduation.(Exclude Technical Writing in English.)