

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

December 29, 1999 - Revision approved in the 5th Engineering Science Ph.D. Program meeting, First Semester of the 99th Academic Year.  
 April 20, 2011 - Revision approved in the First Curriculum Planning Committee meeting, Second Semester of the 99th Academic Year.  
 June 1, 2011 - Revision approved in the 2nd Engineering Science Ph.D. Program meeting, Second Semester of the 99th Academic Year.  
 April 10, 2012 - Revision approved in the First Curriculum Planning Committee meeting, Second Semester of the 100th Academic Year.  
 April 10, 2012 - Revision approved in the 3rd Engineering Science Ph.D. Program meeting, Second Semester of the 100th Academic Year.  
 May 20, 2013 - Revision approved in the 2nd Engineering Science Ph.D. Program meeting, Second Semester of the 101st Academic Year.  
 October 30, 2013 - Revision approved in the First Curriculum Planning Committee meeting, First Semester of the 102nd Academic Year.  
 May 15, 2014 - Revision approved in the 2nd Engineering Science Ph.D. Program meeting, Second Semester of the 102nd Academic Year.  
 May 6, 2015 - Revision approved in the First Curriculum Planning Committee meeting, Second Semester of the 103rd Academic Year.  
 June 9, 2015 - Revision approved in the 2nd Curriculum Planning Committee meeting, Second Semester of the 103rd Academic Year.  
 June 16, 2015 - Revision approved in the 2nd Engineering Science Ph.D. Program meeting, Second Semester of the 103rd Academic Year.  
 April 27, 2016 - Revision approved in the First Curriculum Planning Committee meeting, Second Semester of the 104th Academic Year.  
 June 21, 2016 - Revision approved in the 2nd Engineering Science Ph.D. Program meeting, Second Semester of the 104th Academic Year.  
 April 26, 2017 - Revision approved in the First Curriculum Planning Committee meeting, Second Semester of the 105th Academic Year.  
 June 6, 2017 - Revision approved in the 3rd Engineering Science Ph.D. Program meeting, Second Semester of the 105th Academic Year.  
 June 14, 2018 - Revision approved in the 2nd Curriculum Planning Committee meeting, Second Semester of the 106th Academic Year.  
 June 14, 2018 - Revision approved in the 2nd Engineering Science Ph.D. Program meeting, Second Semester of the 106th Academic Year.  
 April 24, 2019 - Revision approved in the First Curriculum Planning Committee meeting, Second Semester of the 107th Academic Year.  
 April 24, 2019 - Revision approved in the 2nd Engineering Science Ph.D. Program meeting, Second Semester of the 107th Academic Year.  
 June 11, 2019 - Revision approved in the 3rd Engineering Science Ph.D. Program meeting, Second Semester of the 107th Academic Year.

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>
	Mechatronic	<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>● Fuzzy Control</li> <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> </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> </ul>

		<ul style="list-style-type: none"><li>● Neural Networks</li><li>● Big Data Analysis and Applications</li></ul>
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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.)