

**43. Geolocation App Development for iOS (PH057IU)**

Module designation	<i>This course provides students with an introduction to programming on the iOS platform with Swift Programming language for location-based services apps, including Core Location services, Maps, Region monitoring, iBeacon, Compass Heading, Geocoding, Error Handling, and Firebase. In addition, this course gives students skills to design, implement & debug a program for the iOS platform.</i>
Semester(s) in which the module is taught	1, 2
Person responsible for the module	MS. Trương Thị Ngọc Phượng
Language	English
Relation to curriculum	Compulsory
Teaching methods	Lecture, Laboratory, project.
Workload (incl. contact hours, self-study hours)	(Estimated) Total workload: 182.5 Contact hours (please specify whether lecture, exercise, laboratory session, etc.): lecture: 37.5, laboratory: 25 Private study including examination preparation, specified in hours: 120
Credit points/ECTS	4 credits (3theory + 1 practice)/6.62 ECTS
Required and recommended prerequisites for joining the module	Previous course: iOS Programming fundamentals (PH055IU)



<p>Module objectives/intended learning outcomes</p>	<p>Upon the successful completion of this course students will be able to:</p> <table border="1" data-bbox="603 353 1369 1093"> <thead> <tr> <th data-bbox="603 353 823 472">Competency level</th> <th data-bbox="823 353 1369 472">Course learning outcome (CLO)</th> </tr> </thead> <tbody> <tr> <td data-bbox="603 472 823 678">Knowledge</td> <td data-bbox="823 472 1369 678">CLO1. Integrate Core Data Framework, Core Location Framework and Map Kit into iOS apps.</td> </tr> <tr> <td data-bbox="603 678 823 972">Skill</td> <td data-bbox="823 678 1369 972">CLO2. Develop applications using iOS programming platform with the Swift language. CLO3. Write Software Engineering reports in English and explain diagrams</td> </tr> <tr> <td data-bbox="603 972 823 1093">Attitude</td> <td data-bbox="823 972 1369 1093">CLO4: Cooperate effectively with teammates to achieve project goals</td> </tr> </tbody> </table>	Competency level	Course learning outcome (CLO)	Knowledge	CLO1. Integrate Core Data Framework, Core Location Framework and Map Kit into iOS apps.	Skill	CLO2. Develop applications using iOS programming platform with the Swift language. CLO3. Write Software Engineering reports in English and explain diagrams	Attitude	CLO4: Cooperate effectively with teammates to achieve project goals																						
Competency level	Course learning outcome (CLO)																														
Knowledge	CLO1. Integrate Core Data Framework, Core Location Framework and Map Kit into iOS apps.																														
Skill	CLO2. Develop applications using iOS programming platform with the Swift language. CLO3. Write Software Engineering reports in English and explain diagrams																														
Attitude	CLO4: Cooperate effectively with teammates to achieve project goals																														
<p>Content</p>	<p>The description of the contents should clearly indicate the weighting of the content and the level.</p> <p>Weight: lecture session (3 hours)</p> <p>Teaching levels: I (Introduce); T (Teach); U (Utilize)</p> <table border="1" data-bbox="603 1346 1401 2022"> <thead> <tr> <th data-bbox="603 1346 1121 1384">Topic</th> <th data-bbox="1121 1346 1267 1384">Weight</th> <th data-bbox="1267 1346 1401 1384">Level</th> </tr> </thead> <tbody> <tr> <td data-bbox="603 1384 1121 1458">Introduction to Core Location Essentials</td> <td data-bbox="1121 1384 1267 1458">1</td> <td data-bbox="1267 1384 1401 1458">I, T</td> </tr> <tr> <td data-bbox="603 1458 1121 1532">Region Monitoring</td> <td data-bbox="1121 1458 1267 1532">2</td> <td data-bbox="1267 1458 1401 1532">T</td> </tr> <tr> <td data-bbox="603 1532 1121 1606">iBeacon</td> <td data-bbox="1121 1532 1267 1606">2</td> <td data-bbox="1267 1532 1401 1606">T, U</td> </tr> <tr> <td data-bbox="603 1606 1121 1680">Compass Heading</td> <td data-bbox="1121 1606 1267 1680">1</td> <td data-bbox="1267 1606 1401 1680">T, U</td> </tr> <tr> <td data-bbox="603 1680 1121 1753">Geocoding & Maps</td> <td data-bbox="1121 1680 1267 1753">2</td> <td data-bbox="1267 1680 1401 1753">T, U</td> </tr> <tr> <td data-bbox="603 1753 1121 1827">Error Handling and App Development</td> <td data-bbox="1121 1753 1267 1827">1</td> <td data-bbox="1267 1753 1401 1827">U</td> </tr> <tr> <td data-bbox="603 1827 1121 1901">Swift language</td> <td data-bbox="1121 1827 1267 1901">2</td> <td data-bbox="1267 1827 1401 1901">T, U</td> </tr> <tr> <td data-bbox="603 1901 1121 1975">Xcode Project</td> <td data-bbox="1121 1901 1267 1975">2</td> <td data-bbox="1267 1901 1401 1975">T, U</td> </tr> <tr> <td data-bbox="603 1975 1121 2022">GPS Programming</td> <td data-bbox="1121 1975 1267 2022">2</td> <td data-bbox="1267 1975 1401 2022">T, U</td> </tr> </tbody> </table>	Topic	Weight	Level	Introduction to Core Location Essentials	1	I, T	Region Monitoring	2	T	iBeacon	2	T, U	Compass Heading	1	T, U	Geocoding & Maps	2	T, U	Error Handling and App Development	1	U	Swift language	2	T, U	Xcode Project	2	T, U	GPS Programming	2	T, U
Topic	Weight	Level																													
Introduction to Core Location Essentials	1	I, T																													
Region Monitoring	2	T																													
iBeacon	2	T, U																													
Compass Heading	1	T, U																													
Geocoding & Maps	2	T, U																													
Error Handling and App Development	1	U																													
Swift language	2	T, U																													
Xcode Project	2	T, U																													
GPS Programming	2	T, U																													



Examination forms	Project
Study and examination requirements	<p>Attendance: A minimum attendance of 80 percent is compulsory for the class sessions. Students will be assessed on the basis of their class participation. Questions and comments are strongly encouraged.</p> <p>Assignments/Examination: Students must have more than 50/100 points overall to pass this course.</p>
Reading list	<p>Textbooks:</p> <p>[1] <i>iOS 10 Programming Fundamentals with Swift</i>, 2017 third edition, Matt Neuburg.</p> <p>[2] <i>Geolocation in iOS</i>, Alasdair Allan 2012 O'Reilly</p> <p>References:</p> <p>[3] <i>Beginning Android</i>, 5th edition, Grant Allen</p> <p>[4] <i>Learning Android Google Maps</i>, Raj Amal W</p>