

# GRADUATE CERTIFICATE PROGRAMS

Applicants interested in earning a Certificate in Software Engineering and those interested in taking selected courses from the Software Engineering curriculum may be admitted on a non-matriculating basis to the School of Engineering as special-status students. Non-matriculated students must have a Bachelor degree from an accredited university and a minimum of three years experience as a professional software developer or programmer, and academic and professional records that suggest the likelihood of success in demanding graduate courses. Non-matriculated students are admitted to courses on a seating-available basis only. Matriculated students are given preference for course offerings, especially for required and core courses. To earn a certificate, four courses (12 credits) need to be taken from the offerings of that certificate.

## Cyber Security Certificate

Code	Title	Credits
Select four courses from the following:		12
SWEG 5349	Cloud Computing	
SWEG 5530	Introduction to Information Security	
SWEG 6404	Network Security	
SWEG 6530	Applications and Data Security	
SWEG 6599	Ethical Hacking	
<b>Total Credits</b>		<b>12</b>

## Data Science and Big Data Technologies Certificate

Code	Title	Credits
Select four courses from the following:		12
SWEG 5321	Software Project Management	
SWEG 5322	Visual Analytics	
SWEG 5349	Cloud Computing	
SWEG 5360	Machine Learning	
SWEG 5530	Introduction to Information Security	
SWEG 6461	Pattern Recognition	
SWEG 6505	Advanced Database Concepts	
SWEG 6508	Data Warehouse Systems	
SWEG 6518	Data Mining and Business Intelligence	
SWEG 6530	Applications and Data Security	
<b>Total Credits</b>		<b>12</b>

## Network Technology Certificate

Code	Title	Credits
SWEG 6404	Network Security	3
SWEG 6448	Server Management	3
SWEG 6596	Network Routing and Switching	3
SWEG 6599	Ethical Hacking	3
<b>Total Credits</b>		<b>12</b>

**Note:** The sequence of courses SWEG 6404 and SWEG 6596 provides students with the course materials needed to prepare for and take Cisco

Certificated Networking Associate (CCNA) examination. These students are provided with the opportunity for a voucher to partially cover the cost of that certification test.

## Web and Mobile Application Development Certificate

Code	Title	Credits
Select four courses from the following:		12
SWEG 5304	Web Development I	
SWEG 5305	Mobile Application Development	
SWEG 5349	Cloud Computing	
SWEG 5530	Introduction to Information Security	
SWEG 6410	Enterprise Java	
SWEG 6512	Web Development II with ASP.NET	
SWEG 6516	PHP and MySQL	
SWEG 6530	Applications and Data Security	
<b>Total Credits</b>		<b>12</b>