**SIGNAL PROCESSING GRADUATE CERTIFICATE**

**Banner Code:** VS-CERG-SIGP

**Academic Advising**

MSN 1G5  
4400 University Drive  
Fairfax, VA 22030

Phone: 703-993-1569  
Email: ece@gmu.edu  
Website: ece.gmu.edu/graduate-certificates/certificate-program-signal-processing

The Department of Electrical and Computer Engineering, in conjunction with the Department of Statistics, offers the Certificate in Signal Processing, which provides graduate students with an opportunity to reach a demonstrated level of competence in signal processing. Course work for the graduate certificate can be used for credit toward the MS in Statistical Science as well as the MS in Electrical or Computer Engineering. However, the certificate's primary purpose is to provide a well-defined body of information for students who want to advance or update their knowledge in this fast-moving field, but who do not necessarily wish to complete requirements for the MS degree. The certificate may be pursued concurrently with any of the graduate degree programs in the Volgenau School.

The graduate certificate may only be pursued on a part-time basis.

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**Admissions & Policies**

**Admissions**

The graduate certificate is open to all students who hold BS degrees in scientific and engineering disciplines from accredited universities and hold graduate status (either degree or non-degree) in the Volgenau School.

**Policies**

**Program Requirements**

The certificate is awarded on completion of five graduate courses (15 credits) in signal processing. A cumulative GPA of 3.00 is required, and one course with a grade of C at most may be applied toward the certificate. The certificate courses comprise two foundation courses taken by all students and three elective courses.

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**Requirements**

**Certificate Requirements**

Total credits: 15

This certificate may be pursued on a part-time basis only.

**Foundation Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>ECE 528</td>
<td>Introduction to Random Processes in Electrical and Computer Engineering</td>
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**Electives**

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<thead>
<tr>
<th>Code</th>
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<tr>
<td>ECE 535</td>
<td>Digital Signal Processing</td>
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**Total Credits**

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>or STAT 544</td>
<td>Applied Probability</td>
<td></td>
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<tr>
<td>ECE 537</td>
<td>Introduction to Digital Image Processing (DIP)</td>
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<tr>
<td>ECE 621</td>
<td>Systems Identification</td>
<td></td>
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<tr>
<td>ECE 630</td>
<td>Statistical Communication Theory</td>
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<tr>
<td>ECE 635</td>
<td>Adaptive Signal Processing</td>
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<tr>
<td>ECE 722 or ECE 728</td>
<td>Kalman Filtering with Applications</td>
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<tr>
<td>or ECE 728</td>
<td>Random Processes in Electrical and Computer Engineering</td>
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<tr>
<td>ECE 734 or ECE 738</td>
<td>Detection and Estimation Theory</td>
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<tr>
<td>CSI 978</td>
<td>Statistical Analysis of Signals</td>
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<tr>
<td>CSI 672</td>
<td>Statistical Inference</td>
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<tr>
<td>or STAT 652</td>
<td>Statistical Inference</td>
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<tr>
<td>CSI 678 or STAT 658</td>
<td>Times Series Analysis and Forecasting</td>
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<tr>
<td>ECE 751</td>
<td>Information Theory</td>
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<tr>
<td>or ECE 754</td>
<td>Optimum Array Processing I</td>
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<tr>
<td>or CS 775</td>
<td>Advanced Pattern Recognition</td>
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**Total Credits**

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