

## Project proposal template – Faculty studentships Summer 2014

<i>Project title</i>	Structural Health Monitoring of Composite Structures Using the Structural Dynamics Characteristics	<i>Director of Study</i>	Dr. Mohamad Askari
<i>Second Supervisor</i>	Dr. Homa Hadavinia	<i>School</i>	Aerospace and Aircr ▼
<i>Other members of supervisory team</i>	Dr. Ted Donchev, Dr. Samireh Vahid	<i>Any requirements from applicant (eg degree in specific subject area)</i>	Degree in Engineering or Applied Mathematics
<b>Project summary</b> <b>(max 1,000 characters)</b>			
<p>Composite structures are susceptible to damage and they need to be regularly monitored for any damage formation. Common types of damage are delamination, fibre breakage and pull out, moisture absorption, damaged caused by impact and lightening strike, edge delamination and matrix cracking. This research involves using actuation and sensing methods at low and high frequency ranges to obtain the frequency response functions and generate the modal data using vibration analysis for damage detection. Finite Element method, artificial neural network (ANN) using MATLAB will also be used to establish an advanced methodology for damage detection and quantification. The candidate must have experience using Finite Elements and MATLAB and also be familiar with experimental techniques used in Modal testing and vibration monitoring.</p>			