

STEM APPLICATIONS IN THE OFFSHORE WIND INDUSTRY

TYPICAL TASKS	SKILLS REQUIRED	POTENTIAL ROLES / JOB TITLES
Assessment and analysis of: <ul style="list-style-type: none"> • Wind energy resource • Energy forecasting • Wake effect • Ice dynamics • Water impact • Turbulence Effects • Ocean Modelling 	Probability Statistical Methods Pure Mathematics Measure and Probability Advanced Statistics Fluid dynamics Finite Element Analysis	Wind Analysts Resource Assessment Engineers Software Engineers
Structural design & analysis of: <ul style="list-style-type: none"> • Foundations • Towers • Turbines 	Finite Element Analysis Computational Fluid Dynamics (CFD) Discrete Mathematics Calculus Multivariable Calculus Mathematical Modelling Differential Equations & Algorithms Dynamical Systems	Structural Engineers Design Engineers Chief Technology Officers Chief Engineers
Mechanical design of <ul style="list-style-type: none"> • Turbines • Gearboxes • Bearings 	Calculus Multivariable Calculus Mathematical Modelling Differential Equations & Algorithms Dynamical Systems	Mechanical Engineers Design Engineers Chief Technology Officers Chief Engineers

TYPICAL TASKS	SKILLS REQUIRED	POTENTIAL ROLES / JOB TITLES
Power system analysis and design of: <ul style="list-style-type: none"> • Cable Array Design • Transmission Design 	Linear Algebra Graph Theory Electro-Magnetism Calculus Mathematical Modelling Differential Equations & Algorithms	Electrical Engineers Power System Engineers Chief Technology Officers Chief Engineers
Control and operation	IT for Mathematicians Laplace Transform Control Theory	Control Engineers Scada Engineers
Radar interference	IT for Mathematicians Fourier Transform Software Engineering	Control Engineers Radar Engineers
Analysis and monitoring of noise and vibration	Fourier Transform Software Engineering	Vibration Engineers
Energy trading & price forecast modelling	Probability IT for Mathematicians Pure Mathematics Statistical Methods Measure and Probability Advanced Statistics Financial Mathematics	Traders Analysts

Courtesy of The Crown Estate