Autonomous Remotely Operated Vehicles (AI/ML)

Course Module	Content Overview	Duration
Intro to AI and ML	Basics, Key Algorithms (Supervised, Unsupervised, Reinforcement Learning)	3 weeks
Data Prep & Feature Eng.	Data Cleaning, Feature Selection	2 weeks
Supervised Learning	Regression, Classification, Model Tuning	3 weeks
Unsupervised Learning	Clustering, Dimensionality Reduction, Anomaly Detection	2 weeks
Deep Learning	Neural Networks (CNNs, RNNs)	4 weeks
AI/ML in Practice	Predictive Analytics, NLP, AI in Cybersecurity	3 weeks
Ethics and AI Governance	Bias, Ethical Considerations, AI Governance	2 weeks
Capstone Project	Develop and Deploy AI/ML Solution	4 weeks
Intro to ROVs	Overview, History, Types, Applications	2 weeks
ROV Design and Architecture	Components, Power, Control Systems	3 weeks
Navigation and Control	Autonomous Navigation, AI in Control Systems	3 weeks
Sensors and Data	Sensor Types, Data Collection, AI Integration	2 weeks
Communication Systems	Wired/Wireless Communication, Real-Time Transmission, Security	2 weeks
ROV Operations	Mission Planning, Case Studies	3 weeks
Future Trends	AI Advances, Swarm Robotics, Underwater/Space ROVs	2 weeks
Capstone Project	Design and Implement an ROV	4 weeks