General Information for PhD Students in
Naval Architecture and Ocean Engineering 2019 Grade--basic information

I. Brief Introduction

Naval Architecture and Ocean Engineering is National first-class discipline, consisting three secondary disciplines: Design and Construction of Ship and Ocean Structures (082401), Marine Engine Engineering (082402) and Underwater Sound Engineering (082403), and one mobile post-doctoral station in NAOE as well. The discipline has one academician, 6 Chinese Thousand Person Plan scholars, 5 Chang Jiang professors, 2 granters by the Premier Youth Foundation, 35 professors while more than 10 people have positions in International authoritative academic organizations. The discipline owns State Key Laboratory of Ocean Engineering, State Laboratory of Naval Architecture and Ocean Engineering (Planning). The equipment and facilities are first -class worldwide and the comprehensive competence of teaching and research reaches the international advanced level.

II. Academic Objective

The degree recipients should be able to master a solid and broad theory and knowledge of the discipline systematically, deeply investigating the state-of-the-art, developing trends and international research front of the discipline; be able to undertake research work independently and obtain creative achievements in academic or practical research work, can read international materials proficiently, and have certain writing ability and international academic communication ability; being qualified for teaching, researching, engineering technical or scientific management works in the college and university; have the talents to be top end in naval architecture and ocean engineering fields.

III. Study Period

Three to four years

IV. Curriculum and Credits

The educational system for academic doctoral candidate is three to four years. The total credits should be no less than 16. The doctoral candidate must take at least one or two doctoral public elective courses published by the graduate school.

V. Research Papers

The doctoral candidate must publish at least two academic papers as the first author or the second author (supervisor as the first author) , including at least an SCI paper.

VI. Dissertation

In compliance with the relevant university rules.

PhD Students in Naval Architecture and Ocean Engineering 2019 Grade --curriculum of training programme

Course Type	Course Number	Course Name	Department	Credits	Hours	Season	compulsory/elective	Checkbox
General Courses	FL28002	English for Academic Purposes	School of Foreign Languages	2	32	spring	compulsory	
	G090510	Introduction to Chinese Culture	SJTU Graduate School	2	36	spring	compulsory	
	GS00001	Scientific writing, integrity and ethics	SJTU Graduate School	1	16	spring	compulsory	
	CN16003	Elementary Chinese（1）	School of Humanities	4	64	autumn	elective	One out of Four
	CN16004	Elementary Chinese（2）	School of Humanities	4	64	autumn	elective	
	CN16005	Intermediate Chinese（1）	School of Humanities	4	64	autumn	elective	
	CN16006	Intermediate Chinese（2）	School of Humanities	4	64	autumn	elective	
Specialized Core Courses	C010701	Advanced Numerical Structural Mechanics	School of Naval Architecture, Ocean & Civil Engineering	3	54	spring	elective	
	C010706	The Theory and Application of Wave Dynamics	School of Naval Architecture, Ocean & Civil Engineering	2	36	autumn	elective	
	C010722	Marine Hydrodynamics	School of Naval Architecture, Ocean & Civil Engineering	2	36	spring	elective	
	CV26003	Computational Structural Mechanics	School of Naval Architecture, Ocean & Civil Engineering	3	64	spring	elective	
	MA16011	Applied Functional Analysis	School of Mathematical Sciences	3	48	autumn	elective	
	MA16013	Numerical Solution of Partial Differential Equations	SJTU Graduate School	3	48	spring and autumn	elective	
	MA26070	Numerical Solutions of Partial Differential Equations	School of Mathematical Sciences	3	48	autumn	elective	
	MA26073	Matrix Theory	School of Mathematical Sciences	3	48	autumn	elective	
	MA26074	Numerical Analysis	School of Mathematical Sciences	3	48	autumn	elective	
	MA26075	Basic Mathematical Statistics	School of Mathematical Sciences	3	48	autumn	elective	
	MA26078	Optimization method	School of Mathematical Sciences	3	48	autumn	elective	
	NA26004	Lean Production and Management in Shipyard	School of Naval Architecture, Ocean & Civil Engineering	3	48	autumn	elective	

	Code	Course	School	Credits	Hours	Semester	Type	
Specialized Core Courses	NA26018	Finite Element Analysis of Solids and Fluids	School of Naval Architecture, Ocean & Civil Engineering	2	32	spring	elective	
	NA6002	Theoretical Acoustics		3	48	spring	elective	
	NA6004	Ship Decision Theory for Engineering		3	48	autumn	elective	
	NA6018	Modeling and Simulation of Marine Power Plant		3	48	spring	elective	
	NA6019	Fault Diagnosis for Marine Power Plants		3	48	spring	elective	
	NA6021	Advanced Heat Transfer		3	48	spring	elective	
	NA6024	Advanced Computational Fluid Dynamics		3	48	spring	elective	
	NA6025	Advanced Dynamics of Structures		3	48	spring	elective	
Specialized Advanced Courses	NA26016	Pontential theory of ship motion in waves	School of Naval Architecture, Ocean & Civil Engineering	2	32	spring	elective	
	NA26017	Ship Manoeuvrability	School of Naval Architecture, Ocean & Civil Engineering	2	32	spring	elective	
	NA28002	Ocean Turbulence	School of Naval Architecture, Ocean & Civil Engineering	3	48	spring	elective	
	NA6011	Computational mechanics for marine structure		3	48	autumn	elective	
	NA6012	Safety assessment for ship and offshore structures		3	48	spring	elective	
	NA6013	Structural Dynamics for Naval Architecture and Ocean Engineering		3	48	spring	elective	
	NA6022	Advanced Hydrodynamics for Naval Architecture and Ocean Engineering		3	48	autumn	elective	
	NA6026	Hydrodynamics of Offshore Structures		3	48	spring	elective	
	NA6030	The frontier of marine engine engineering's development		2	32	autumn	elective	
	NA6034	Underwater Signal Processing		3	48	autumn	elective	
	NA6035	Underwater acoustics foundations		3	48	spring	elective	
	NA6037	Maneuver and Control of Underwater vehicles		3	48	spring	elective	
	NA6041	Modern control theory		3	48	spring	elective	
	NA6042	Underwater Robots		2	32	spring	elective	
	NA6045	Academic Reports		2	32	autumn	compulsory	

Specialized Advanced Courses	X010504	Advanced Structural Mechanics	School of Naval Architecture, Ocean & Civil Engineering	3	54	spring	elective	
	X010507	Estuary and Coastal Dynamics	School of Naval Architecture, Ocean & Civil Engineering	2	36	spring	elective	
	X010508	Numerical Model	School of Naval Architecture, Ocean & Civil Engineering	3	54	spring	elective	
	X010545	Sediment Dynamics	School of Naval Architecture, Ocean & Civil Engineering	3	54	autumn	elective	
	X010548	Computational ship hydrodynamics	School of Naval Architecture, Ocean & Civil Engineering	3	54	autumn	elective	
Specialized Optional Courses	B140703	Second Foreign Language (Japanese)	SJTU Graduate School	2	108	autumn	elective	
	B140704	Second Foreign Language (German)	SJTU Graduate School	2	108	autumn	elective	
	C100712	Water Wave Dynamics	School of Naval Architecture, Ocean & Civil Engineering	3	54	autumn	elective	
	F010507	Nonlinear Dynamics	School of Naval Architecture, Ocean & Civil Engineering	2	36	spring	elective	
	F010509	Mechanics in Shipbuilding Technology	School of Naval Architecture, Ocean & Civil Engineering	2	36	autumn	elective	
	F010513	Advanced Resistance of Ships	School of Naval Architecture, Ocean & Civil Engineering	2	36	spring	elective	
	F010561	Applied Sedimentation Mechanics and Waterway Regulation in Estuaries	School of Naval Architecture, Ocean & Civil Engineering	2	36	spring	elective	
	F010562	Physical modelling theory and applications in coastal engineering	School of Naval Architecture, Ocean & Civil Engineering	2	36	spring	elective	
	F010621	Transport Economics	School of Naval Architecture, Ocean & Civil Engineering	2	32	spring	elective	
	G071532	Functional Analysis with Application	SJTU Graduate School	3	54	spring	elective	
	GS00002	Engineering Practice Exploration and Research	SJTU Graduate School	2	32	autumn	elective	
	NA26002	ship maneuvering and control	School of Naval Architecture, Ocean & Civil Engineering	3	54	autumn	elective	

Specialized Optional Courses	NA26005	Design and Practice of new Conceptions of Naval Architecture and Ocean Engineering	School of Naval Architecture, Ocean & Civil Engineering	4	64	spring	elective	
	NA26006	Design and Practice of Intelligent Green Ship	School of Naval Architecture, Ocean & Civil Engineering	4	64	autumn	elective	
	NA28001	Advanced Combustion	School of Naval Architecture, Ocean & Civil Engineering	3	51	autumn	elective	
	NA6001	Hydroelasticity of Floating Structures and its applications in Ocean Engineering		3	48	autumn	elective	
	NA6006	Optimum Design of Ship Structures		2	32	spring	elective	
	NA6008	Current Research and Developments in Ship Propulsion		3	48	spring	elective	
	NA6009	Theoretical and numerical methods for marine propulsors		3	48	spring	elective	
	NA6010	Dynamics of Ships and Floating Structures		3	48	autumn	elective	
	NA6014	Analysis Methods of Fatigue Strength for Marine Structures		3	48	spring	elective	
	NA6017	Dynamic Positioning System Design		3	48	spring	elective	
	NA6020	Pan-Reliability Engineering		2	32	autumn	elective	
	NA6027	Position Technology of Marine Structures		2	32	autumn	elective	
	NA6028	Virtual Reality Design of Ocean Structures		3	48	spring	elective	
	NA6029	Structure testing and data analysis		2	32	spring	elective	
	NA6031	Control Technology of Marine Power Plants		3	48	spring	elective	
	NA6032	Sound and vibration analysis		3	48	spring	elective	
	NA6033	Underwater acoustics measurement		3	48	autumn	elective	
	NA6038	Underwater Noise		3	48	autumn	elective	
	NA6040	Modern Ship Structural Design		3	48	autumn	elective	
	X010521	Principles of Acoustics	School of Naval Architecture, Ocean & Civil Engineering	3	54	spring	elective	
	X010541	Theory of plates and shells	School of Naval Architecture, Ocean & Civil Engineering	3	54	autumn	elective	

Specialized Optional Courses	X100523	Fracture Mechanics	School of Naval Architecture, Ocean & Civil Engineering	2	36	spring	elective	
	X100528	Elastici-Plastic Mechanics	School of Naval Architecture, Ocean & Civil Engineering	3	54	spring	elective	
	X100531	Variational Theory and Finite Element Method	School of Naval Architecture, Ocean & Civil Engineering	3	54	spring	elective	