

**ANNEX B OF CMO NO. 20, SERIES OF 2015
BACHELOR OF SCIENCE IN MARINE ENGINEERING
COURSE SPECIFICATIONS**

Course Code	:	Mech
Course Descriptive Title	:	Mechanics and Hydromechanics
Course Credits	:	3 units
Lecture Contact Hours per Week	:	3 hours
Laboratory Contact Hours per Week	:	0 hours
○ Prerequisite	:	Math 2
Reference/s	:	<ul style="list-style-type: none"> ○ Table A-III/2 Function: Marine Engineering ○ STCW'78 as amended ○ IMO Model Course 7.02 ○ Annex A of CMO No. 20, Series of 2015 (Curriculum Mapping for BSMarE)

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	PERFORMANCE	APPROX HOURS
Plan and schedule operations (ML)	Mechanics and hydromechanics	Balancing <ul style="list-style-type: none"> - Demonstrates knowledge and understanding of: <ul style="list-style-type: none"> - Primary and secondary forces - Primary and secondary couples - Complete balancing of reciprocating machinery - Critical speed 	8 Hours
		Simple Harmonic Motion <ul style="list-style-type: none"> - Demonstrates knowledge and understanding of: <ul style="list-style-type: none"> - Equation of simple harmonic motion - Amplitude, frequency and periodic time - Vibrating spring mass systems - Springs - Resonance - Transmissibility - Vibrations of flywheels and gearwheels 	8 Hours
		Stress and Strain <ul style="list-style-type: none"> - Demonstrates knowledge and understanding of: <ul style="list-style-type: none"> - Stress and strain relationships in thin cylindrical and spherical shells - Stress in thin, rotating rims - Thermal stress - Stress in compound bars - Elastic strain energy - Stresses due to gradually applied and shock loads 	8 Hours
		Torsion <ul style="list-style-type: none"> - Demonstrates knowledge and understanding of: <ul style="list-style-type: none"> - Stress, strain and strain energy due to torsion - Fundamental torsion equation - Reciprocating engine crank effort - Rudder stock turning moment from steering gear - Deflection of helical springs 	8 Hours
		Combined Stress <ul style="list-style-type: none"> - Demonstrates knowledge and understanding of: <ul style="list-style-type: none"> - Stresses on an oblique plane - Material subjected to two perpendicular stresses - Axial and bending stress - Mohr's stress circle. Principal stresses and strains 	8 Hours

COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	PERFORMANCE	APPROX HOURS
Plan and schedule operations (ML) (cont)	Mechanics and hydromechanics (cont)	<ul style="list-style-type: none"> - Combined bending and twisting Fluid Mechanics <ul style="list-style-type: none"> - Demonstrates knowledge and understanding of: <ul style="list-style-type: none"> - Volume and mass flow - Venturi meter - Bernouilli's equation - Jets. Orifice coefficients - Dynamic and kinematic viscosity - Reynolds' number - Flow losses in pipes and fittings - Darcy's formula - Centrifugal pumps 	8 Hours
		Total No. Of Hours	48 hours

* discrepancy between course specifications and course map total number of hours is intended for assessment