

**MODEL EMBEDMENT OF MECHANICAL DRAFTING NC I AND CAD/CAM OPERATION NC III  
IN BACHELOR OF SCIENCE IN NAVAL ARCHITECTURE AND MARINE ENGINEERING**

**FIRST YEAR  
First Semester**

Course Code	Descriptive Title	Hours			Hours/ sem	Pre- requisite	TVET Competencies (Basic/Common/Core)	Nominal Hours	Theory (hrs/wk)	Practicum (hrs/wk)
		LEC	LAB	UNITS						
CALC1	Differential Calculus	3	0	3	54	None	**Basic: Use mathematical concepts and techniques		3 hrs/wk	
							**Common: Perform shop computations (Advanced)			
DRAW1	Ship Drafting 1	0	6	2	108	None	*/**Common: Interpret working drawings and sketches	Total Nominal Hours for Mechanical Drafting NC I: <b>218 hours</b>		6 hrs/wk
							*Core: Prepare basic engineering drafting			
							*Core: Perform basic engineering detail drafting			
NA1	Introduction to Naval Architecture and Marine Engineering	3	3	4	108	None	*/**Common: Interpret working drawing and sketches	Total Nominal Hours for CAM/CAD Operation NC III: <b>234 hours</b>	3 hrs/wk	3 hrs/Wk
NGEC1	Understanding the Self	3	0	3	54	None				
NGEC2	Readings in Philippine History	3	0	3	54	None				
NGEC3	The Contemporary World	3	0	3	54	None				
PE1	Team Sports	1	3	2	72	None				
NSTP1	NSTP	—	—	3		None				
<b>Sub-Total:</b>		<b>16</b>	<b>12</b>	<b>23</b>						

\* TVET Competencies for Mechanical Drafting NC I

\*\* TVET Competencies for CAM/CAD Operation NC III

## Second Semester

<u>Course Code</u>	<u>Descriptive Title</u>	<u>Hours</u>			<u>Hours/sem</u>	<u>Pre-requisite</u>	<u>TVET Competencies</u>	<u>Nominal Hours</u>	<u>Theory (hrs/wk)</u>	<u>Practicum (hrs/wk)</u>
		<u>LEC</u>	<u>LAB</u>	<u>UNITS</u>						
CALC2	Integral Calculus	3	0	3	54	CALC1	<b>**Basic:</b> Use mathematical concepts and techniques <b>**Common:</b> Perform shop computations (Advanced)		3 hrs/wk	
DRAW2	Ship Drafting 2 (Computer-Aided Drafting)	0	6	2	108	Draw 1	<b>*/**Common:</b> Interpret working drawings and sketches <b>**Core:</b> Create drawing using CAD software			6 hrs/wk
NGEC4	Mathematics in the Modern World	3	0	3	54	None	<b>**Basic:</b> Solve problems related to work activities		3 hrs/wk	
NGEC5	Purposive Communication	3	0	3	54	None	<b>*Basic:</b> Receive and respond to workplace communication <b>**Basic:</b> Lead workplace communication <b>**Basic:</b> Develop and practice negotiation skills		3 hrs/wk	
NGEC6	Art Appreciation	3	0	3	54	None				
NGEC7	Science, Technology and Society	3	0	3	54	None	<b>**Basic:</b> Use relevant technologies <b>**Common:</b> Operate a personal computer		3 hrs/wk	
NGEC9	Math, Science, & Technology	3	0	3	54	None	<b>**Basic:</b> Use mathematical concepts and techniques <b>**Basic:</b> Use relevant technologies <b>**Basic:</b> Operate a personal computer		3 hrs/wk	
PE2	Team Sports	2	0	2	36	None				
NSTP2	National Service TP 2	—	—	3		None				
<b>Sub-Total:</b>		<b>20</b>	<b>6</b>	<b>25</b>						


**SECOND YEAR**  
**First Semester**

Course Code	Descriptive Title	Hours			Hours/sem	Pre-requisite	TVET Competencies	Nominal Hours	Theory (hrs/wk)	Practicum (hrs/wk)
		LEC	LAB	UNITS						
EE1	Basic Electrical Engineering	2	3	3	90	None	<b>*/**Common:</b> Apply safety practices		2 hrs/wk	3 hrs/wk
EMAT1	Engineering Materials	3	0	3	54	None	<b>**Common:</b> Select/ cut workshop materials		3 hrs/wk	
MARE1	Marine Engineering 1	3	3	4	108	None				
NGEC10	Social Sciences & Philosophy	3	0	3	54	None				
SHIP	Ship Building Processes	3	6	5	162	NA 1	<b>*/**Common:</b> Apply safety practices		3 hrs./wk	6 hrs./wk
							<b>*/**Common:</b> Perform shop computations (Basic)			
							<b>*/**Common:</b> Measure workpiece (Basic)			
							<b>**Common:</b> Perform routine housekeeping			
							<b>**Common:</b> Perform shop computations (Intermediate)			
<b>**Common:</b> Measure workpiece using angular measuring instruments										
SHOP	Workshop Theory and Practices	2	3	3	90	None	<b>*Basic:</b> Work with Others		2 hrs/wk	3 hrs/wk
							<b>*Basic:</b> Demonstrate Work Values			
							<b>*Basic:</b> Practice Housekeeping Procedures			
							<b>*/**Common:</b> Apply safety practices			
							<b>*/**Common:</b> Perform shop computations (Basic)			

							*/** <b>Common</b> : Measure workpiece (Basic)			
							** <b>Basic</b> : Lead small teams			
							** <b>Common</b> : Select/ cut workshop materials			
							** <b>Common</b> : Perform routine housekeeping			
							** <b>Common</b> : Perform shop computations (Intermediate)			
							** <b>Common</b> : Measure workpiece using angular measuring instruments			
							** <b>Common</b> : Perform shop computations (Advanced)			
							** <b>Common</b> : Measure workpiece using gages and surface texture comparator			
PE3	Physical Fitness	2	0	2	36	None				
<b>Sub-Total:</b>		<b>18</b>	<b>15</b>	<b>23</b>						

**A Mechanical Drafting NC I will be issued by TESDA upon passing the certification process.**

## Second Semester

<u>Course Code</u>	<u>Descriptive Title</u>	<u>Hours</u>			<u>Hours/sem</u>	<u>Pre-requisite</u>	<u>TVET Competencies</u>	<u>Nominal Hours</u>	<u>Theory (hrs/wk)</u>	<u>Practicum (hrs/wk)</u>
		<u>LEC</u>	<u>LAB</u>	<u>UNITS</u>						
NGEC 11	Arts and Humanities	3	0	3	54	NGEC10				
RIZAL	The Life and Works of Dr. Jose Rizal	3	0	3	54					
MARE 2	Marine Engineering 2	3	3	4	108	MARE 1	<b>**Common:</b> Perform preventive and corrective maintenance 	3 hrs/wk	3 hrs/wk	
MECH 1	Static of Rigid Bodies	3	0	3	54	None				
NA 2	Ship Hydrostatics	3	0	3	54	NA 1				
DRAW 3	Ship Modeling (Computer-aided Design)	2	3	3	90	DRAW 2	<b>**Core:</b> Apply CAD/CAM program	2 hrs/wk	3 hrs/wk	
THERMO1	Thermodynamics 1	3	0	3	54	None				
PE4	Physical Fitness	2	0	2	36	None				
<b>Sub-Total:</b>		<b>22</b>	<b>6</b>	<b>24</b>						

**A CAD/CAM NC III will be issued by TESDA upon passing the certification process.**

**THIRD YEAR**  
**First Semester**

<u>Course Code</u>	<u>Descriptive Title</u>	<u>Hours</u>			<u>Hours/sem</u>	<u>Pre-requisite</u>
		<u>LEC</u>	<u>LAB</u>	<u>UNITS</u>		
CALC 3	Differential Equation	3	0	3	54	CALC 2
MARE 3	Marine Auxiliary Generating System	4	3	5	126	MARE 2
MECH2	Mechanics of Deformable System	3	0	3	54	MECH 1
NA3	Ship Resistance	3	3	4	108	NA2
ELECTRO	Basic Electronics	2	3	3	90	None
THERMO 2	Thermodynamics 2	3	0	3	54	THERMO 1
NGEC 8	Ethics	3	0	3	54	None
<b>Sub-Total:</b>		<b>21</b>	<b>9</b>	<b>24</b>		

**Second Semester**

<u>Course Code</u>	<u>Descriptive Title</u>	<u>Hours</u>			<u>Hours/sem</u>	<u>Pre-requisite</u>
		<u>LEC</u>	<u>LAB</u>	<u>UNITS</u>		
KMATICS	Kinematics and Dynamics of Machines	2	3	3	90	None
EE2	DC and AC Machinery	3	3	4	108	EE1
ELEC 1	General Engineering Elective	3	0	3	54	
ENVI	Environmental Engineering	2	0	2	36	None
FMECH	Fluid Mechanics	3	0	3	54	THERMO 2
MARE 4	Marine Power Plant Engineering	3	0	3	54	MARE 3
MECH 3	Mechanics of Deformable Bodies	2	0	2	36	MECH2
NA 4	Intact Stability	3	3	4	108	NA3
<b>Sub-Total:</b>		<b>21</b>	<b>9</b>	<b>24</b>		

**FOURTH YEAR**  
**First Semester**

<u>Course Code</u>	<u>Descriptive Title</u>	<u>Hours</u>			<u>Hours/sem</u>	<u>Pre-requisite</u>
		<u>LEC</u>	<u>LAB</u>	<u>UNITS</u>		
MARE5	Ship Propulsion	3	3	4	108	MARE 4
NA 5	Damage Stability	3	6	5	162	NA4
NA 6	Ship Structural Analysis	3	6	5	162	NA 2; MECH 3
NA 7	Ship Structural Design	3	3	4	36	
NA 8	Motion in Waves	2	3	3	90	Prereq: NA 1, 2, 3 and 4
						Coreq: NA 5, 6 and MarE5
NA 9	Ship Design 1	2	9	5	198	NA 8
<b>Sub-Total:</b>		<b>16</b>	<b>30</b>	<b>26</b>		

**Second Semester**

<u>Course Code</u>	<u>Descriptive Title</u>	<u>Hours</u>			<u>Hours/sem</u>	<u>Pre-requisite</u>
		<u>LEC</u>	<u>LAB</u>	<u>UNITS</u>		
MARLAW	Maritime Laws, Rules & Regulations and Code of Ethics	3	0	3	54	NGEC8
NA 10	Ship Design 2	2	9	5	198	NA 8
NA 11	Shipyards Management	3	0	3	54	None
NA 12	Shipyards Processes	2	3	3	90	NA 6
NA 13	Contracts and Specifications	3	0	3	54	None
NA 14	Marine Inspections & Surveys	2	3	3	90	None
ECON	Engineering Economics	3	0	3	54	None
<b>Sub-Total:</b>		<b>18</b>	<b>15</b>	<b>23</b>		