

ATENEO DE DAVAO UNIVERSITY
Bachelor of Science in ROBOTICS ENGINEERING
 --- Effective SY 2020 - 2021 ---

FIRST YEAR													
FIRST SEMESTER							SECOND SEMESTER						
Course No.	Course Title	Lec	Lab	Units	Pre-requisites	Course No.	Course Title	Lec	Lab	Units	Pre-requisites		
ROBO 1101	Shielded Metal Arc Welding (SMAW)	1	3	2	1-3-2	None	ROBO 1201	Gas Metal Arc Welding (GMAW)	1	3	2	1-3-2	ROBO 1101
ROBO 1103	Technical Drafting	0	6	2	0-6-2	None	ROBO 1203	Mechanical Drafting	0	6	2	0-6-2	ROBO 1103
ROBO 1105	Building Electrical Wiring	1	3	2	1-3-2	None	Chem 1035	Chemistry for Engineers Lec	3	0	3	3-0-3	None
ESM 1000	Fundamentals of Engineering Mathematics	3	0	3	3-0-3*	None	Chem 1036	Chemistry for Engineers Lab	0	3	1	0-3-1	None
GE 1105	Understanding the Self	3	0	3	3-0-3	None	ESM 1030	Engineering Calculus 1 (Differential Calculus)	5	0	5	5-0-5	ESM 1000
GE 1106	Purposive Communication	3	0	3	3-0-3	None	GE 1210	Readings in Philippine History	3	0	3	3-0-3	None
GE 1108	Mathematics in the Modern World	3	0	3	3-0-3	None	GE 1212	Science, Technology, and Society	3	0	3	3-0-3	None
Philo 1000	Philosophy	3	0	3	3-0-3*	None	Theo 1000	Theology	3	0	3	3-0-3*	None
ASF 1000	Arrupe Social Formation 0	2	0	0	2-0-2*	None	ASF 1101	Arrupe Social Formation 1	2	0	2	2-0-2*	ASF 1000
ASF 1101	Arrupe Social Formation 1	2	0	2	2-0-2	None	PE 1215	PATH-FIT II	2	0	2	2-0-2	PE 1114
PE 1114	PATH-FIT I	2	0	2	2-0-2	None	ASF 1203	National Service Training Program-Civic Welfare Training Service 2	3	0	3	3-0-3	ASF 1102
ASF 1102	National Service Training Program-Civic Welfare Training Service 1	3	0	3	3-0-3	None			25	12	29	26/29*	
		24	12	28	25/28*				37				

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SECOND YEAR													
FIRST SEMESTER							SECOND SEMESTER						
Course No.	Course Title	Lec	Lab	Units	Pre-requisites	Course No.	Course Title	Lec	Lab	Units	Pre-requisites		
ROBO 2101	Basic Machining	1	3	2	1-3-2	ROBO 1201	CNC Machining	1	3	2	1-3-2	ROBO 2101	
ROBO 2103	Programming Logic and Design	0	6	2	0-6-2	None	ROBO 2203	Object-Oriented Programming	0	6	2	0-6-2	ROBO 2103
ROBO 2105	Materials Science for Robotics Eng'g.	2	0	2	2-0-2	Chem 1035&1036	ROBO 2205	Electrical Circuit Analysis	3	3	4	3-3-4	ROBO 1105, Phys 1261&1262
Phys 1261	Physics for Engineers Lec	3	0	3	3-0-3	ESM 1030	ROBO 2207	Electronic Devices & Circuits	3	3	4	3-3-4	ROBO 2105, Phys 1261&1262
Phys 1262	Physics for Engineers Lab	0	6	2	0-6-2	ESM 1030	ROBO 2209	Thermodynamics for Robotics Eng'g.	2	0	2	2-0-2	ESM 1031, Phys 1261&1262
ESM 1031	Engineering Calculus 2 (Integral Calculus)	5	0	5	5-0-5	ESM 1030	ESM 2034	Differential Equations	3	0	3	3-0-3	ESM 1031
ESM 2035	Engineering Data Analysis	3	0	3	3-0-3	ESM 1030	ESM 2037	Engineering Mechanics	3	0	3	3-0-3	ESM 1031, Phys 1261&1262
GE 1107	Art Appreciation	3	0	3	3-0-3	None	ESM 3045	Engineering Management	2	0	2	2-0-2	None
GE 1101	Philosophy of Human Person	3	0	3	3-0-3	None	GE 1211	The Contemporary World	3	0	3	3-0-3	None
PE 2116	PATH-FIT III	2	0	2	2-0-2	PE 1215	PE 2217	PATH-FIT IV	2	0	2	2-0-2	PE 2116
		22	15	27	27				22	15	27	27	

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THIRD YEAR													
FIRST SEMESTER							SECOND SEMESTER						
Course No.	Course Title	Lec	Lab	Units	Pre-requisites	Course No.	Course Title	Lec	Lab	Units	Pre-requisites		
ROBO 3101	Introduction to Artificial Intelligence	3	3	4	3-3-4	ROBO 2203, ESM 2035	ROBO 3201	Introduction to Robotics	3	3	4	3-3-4	ROBO 3101&3105&3107&3111
ROBO 3103	Electrical Machines	3	3	4	3-3-4	ROBO 1203&2201&2205&2207, ESM 2037	ROBO 3203	Mechanics of Machines	3	3	3	2-3-3	ROBO 3103&3109&3111
ROBO 3105	Electronic Systems and Design	3	3	4	3-3-4	ROBO 2207, ESM 2034	ROBO 3205	Digital Signal Processing	3	3	4	3-3-4	ROBO 3105&3107&3111
ROBO 3107	Logic Circuits and Design	3	3	4	3-3-4	ROBO 2205&2207	ROBO 3207	Microprocessor and Microcontroller System	3	3	4	3-3-4	ROBO 3105&3107
ROBO 3109	Additive Manufacturing (3D Printing)	1	3	2	1-3-2	ROBO 1203&2105	ROBO 3209	Instrumentation and Control Systems	3	3	4	3-3-4	ROBO 3105&3107
ROBO 3111	Advanced Mathematics for Robotics Eng'g.	3	0	3	3-0-3	ESM 2034	ROBO 5100	Professional Elective I	3	0	3	3-0-3	ESM 2034, ESM 2037
ROBO 3100	Research Methods for Robotics Eng'g.	3	0	3	3-0-3	ESM 2035	2	Thesis I (for Robotics Eng'g)	1	3	2	1-3-2	ROBO 3100&3101
GE 3118	Elective 1	3	0	3	3-0-3	None	GE 3219	Elective 2	3	0	3	3-0-3	None
		22	15	27	27				21	18	27	27	

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SUMMER													
Course No.	Course Title	Lec	Lab	Units	Pre-requisites								
ROBO 3000	Industry Immersion for Robotics Eng'g	0	240	0	0-240-2	ROBO 3201, ROBO 4000							
				0	2								

FOURTH YEAR													
FIRST SEMESTER							SECOND SEMESTER						
Course No.	Course Title	Lec	Lab	Units	Pre-requisites	Course No.	Course Title	Lec	Lab	Units	Pre-requisites		
ROBO 4100	Thesis II (for Robotics Eng'g)	1	3	2	1-3-2	ROBO 3201&4000	ROBO 4200	Thesis III (for Robotics Eng'g)	0	3	1	0-3-1	ROBO 4100
ROBO 4101	Advanced Control Systems	2	3	3	2-3-3	ROBO 3201&3203&3209	ROBO 4201	Intelligent Robotics	2	3	3	2-3-3	ROBO 4101&4103&4105
ROBO 4103	Embedded Systems with Internet of Things	2	3	3	2-3-3	ROBO 3205&3207	ROBO 4203	Laws, Ethics, Codes & Standards for Robotics Eng'g.	2	0	2	2-0-2	ROBO 3201
ROBO 4105	Neural Networks and Deep Learning	2	3	3	2-3-3	ROBO 3201&3205	Tech 1001	Technopreneurship 101	3	0	3	3-0-3	None
ROBO 4107	Computer Vision	2	3	3	2-3-3	ROBO 3201&3203&3209	ROBO 5300	Professional Elective III	3	0	3	3-0-3	ROBO 5100
ROBO 4109	Seminars & Field Trips for Robotics Eng'g.	0	3	1	0-3-1	ROBO 3201	ROBO 5400	Professional Elective IV	3	0	3	3-0-3	ROBO 5100
ROBO 5200	Professional Elective II	3	0	3	3-0-3	ESM 2034, ESM 2037	ESM 3137	Environmental Science and Engineering	3	0	3	3-0-3	Chem 1035&1036
ESM 3043	Engineering Economics	3	0	3	3-0-3	ESM 1031	GE 1213	Life and Works of Rizal	3	0	3	3-0-3	None
GE 1109	Ethics	3	0	3	3-0-3	None	ASF 4200	Seniors' Integration Program	2	0	2	2-0-2	None
GE 4120	Elective 3	3	0	3	3-0-3	None			21	6	23	23	
		21	18	27	27				27				

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Total No. of Units 217 211/217*

Professional Electives:**I Agricultural Robotics**

- Fundamentals of Agriculture
- Plant and Livestock Systems and Environmental Control Engineering
- Precision Farming Technology
- Autonomous Robots

II Biomedical Technology

- Introduction to Anatomy and Physiology
- Biomechanics
- Biomaterials/General Biochemistry
- Medical & Assistive Instruments

III Food and Biosensor Technology

- Food Science and Technology Fundamentals
- Biosensor Principles and Applications
- Food Packaging Innovation and Labelling
- Green Technologies and Innovation in Food Production and Processing

IV Automation & Robotics Technology

- Programmable Controllers and Data Acquisition
- Hydraulics and Pneumatics
- Sensors, Actuators and Manipulators
- Field and Service Robotics

V Aerospace Technology

- Aerospace Manufacturing System
- Aerospace Material & NDT Technology
- Reliability & Failure Analysis
- Aircraft Propulsion System

VI Microelectromechanical Technology

- Microfluidics Technology
- Microelectromechanical Systems (MEMS)
- MEMS Interface IC Design/FPGA
- Sensors and Actuators in Microsystems

Notes:

PRE-REQUISITES must be taken and passed before the **COURSE** you want to enroll.

LEC and **LAB** subjects must be taken **simultaneously**.

nth year standing : has taken and passed at least 75% of the professional courses of the previous year

*For non-AdDU SHS Graduates