

Course Structure for Undergraduate Program
Undergraduate Program of Vehicle and Energy Engineering
National Taiwan Normal University

Adaptive to Class of	Common Courses Credit(s)	Required Credit(s)	Elective Credit(s)	Free Elective Credit(s)	Minimum Total Credits for Graduation
107	28.0	47.0	28.0	25.0	128.0

I. General Course: 28.0 credits are required

Course Name	Credit(s)
1 Chinese 4.0 credits are required	
1-1 Chinese(I)	2.0
1-2 Chinese(II)	2.0
2 English 6.0 credits are required, Students who major in Department of English must take the course which course code are ENU0168 and ENU0169 with a passing score for instead	
2-1 English(I)	2.0
2-2 English(II)	2.0
2-3 English(III)	2.0
3 General Education Courses 18.0 credits are required	
3-1 Language and Literature 2.0 credits are required	
3-2 Art and Aesthetics 2.0 credits are required	
3-3 Philosophical Thinking and Moral Reasoning 2.0 credits are required	
3-4 Citizenship and Social Inquiry 2.0 credits are required	
3-5 History and Culture 2.0 credits are required	
3-6 Mathematical and Logical Thinking 2.0 credits are required	
3-7 Science and Life 2.0 credits are required	
3-8 Second Foreign Language	
3-9 Life Skills	
3-10 Self-Directed Learning	
4 Physical Education (1.The credits will not be counted in for graduation. 2.Students who major in Department of Physical Education or Athletic Performance are exempted from the courses.) 6.0 credits are required, 6 courses are least required	
5 Service-Learning 1 course is least required	
5-1 Service-Learning(II)	0.0
5-2 Basic Service-Learning	0.0

Note: The first alphabet "E" on the course name refers to the course in English as a medium of instruction

II. Required Courses: 47.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
VEU0003	1 Electric Circuits (I)	3.0	3.0	0.0	
VEU0002	2 Introduction to Energy Technology	2.0	2.0	0.0	
VEU0004	3 Electrical Circuits Experiment	2.0	0.0	4.0	
VEU0005	4 Introduction to Energy Technology	2.0	0.0	4.0	
VEU0006	5 Introduction to Power Mechanics	2.0	2.0	0.0	
VEU0007	6 Electronics (I)	3.0	3.0	0.0	
VEU0008	7 Electronics Laboratory	2.0	0.0	4.0	
VEU0009	8 Vehicle Basic Technology	2.0	0.0	4.0	
VEU0011	9 Thermo-Dynamics (I)	3.0	3.0	0.0	
VEU0012	10 Internal Combustion Engine	3.0	3.0	0.0	
VEU0013	11 Applied Mechanics	3.0	3.0	0.0	
VEU0014	12 Automatic Control Engineering	3.0	3.0	0.0	
VEU0072	13 Automotive Chassis Repair	2.0	0.0	4.0	
VEU0016	14 Electric Vehicle	3.0	3.0	0.0	
MAU0180	15 Calculus B (I)	3.0	3.0	0.0	
MAU0181	16 Calculus B (II)	3.0	3.0	0.0	
PHU0253	17 Fundamental Physics	3.0	3.0	0.0	
VEU0010	18 Engineering Mathematics (I)	3.0	3.0	0.0	

III. Elective Courses: 28.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
VEU0017	1 Computer Programming	3.0	3.0	0.0	
VEU0019	2 Engineering Graphics and Computer-Aided Design	3.0	3.0	0.0	
VEU0047	3 Smart Grid	3.0	3.0	0.0	
VEU0039	4 Heat Transfer	3.0	3.0	0.0	
VEU0029	5 Microprocessor	3.0	3.0	0.0	
VEU0036	6 Vehicle Design	3.0	3.0	0.0	
VEU0045	7 Fluid Mechanics	3.0	3.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
VEU0064	8 Engine Rebuilding	2.0	0.0	4.0	
VEU0051	9 Food Refrigeration	3.0	3.0	0.0	
VEU0060	10 Hybrid Vehicles	2.0	2.0	0.0	
VEU0054	11 Indoor Air Quality	3.0	3.0	0.0	
VEU0030	12 Circuit Theory (II)	3.0	3.0	0.0	
VEU0033	13 Thermodynamics (II)	3.0	3.0	0.0	
VEU0059	14 Diesel Engine Repair	2.0	0.0	4.0	
VEU0069	15 Special Topics (I)	2.0	2.0	0.0	
VEU0034	16 Solar Photovoltaic Systems	3.0	3.0	0.0	
VEU0070	17 Special Topics (II)	2.0	2.0	0.0	
VEU0049	18 Vehicle Alternative Fuels	3.0	3.0	0.0	
VEU0062	19 Renewable Energy Practices	2.0	0.0	4.0	
VEU0056	20 Microprocessors Experiments	2.0	0.0	4.0	
VEU0058	21 Energy Application Practice	2.0	0.0	4.0	
VEU0038	22 Technology of Energy Saving	3.0	3.0	0.0	
VEU0050	23 Image Recognition Technology	3.0	3.0	0.0	
VEU0053	24 Building Energy Conservation	3.0	3.0	0.0	
VEU0044	25 Internet of Vehicle Technology	3.0	3.0	0.0	
VEU0032	26 Engineering Mathematics (II)	3.0	3.0	0.0	
VEU0035	27 Wireless Communications System	3.0	3.0	0.0	
VEU0057	28 Internal Combustion Engine Test	2.0	0.0	4.0	
VEU0061	29 Automotive Electric System Repair	2.0	0.0	4.0	
VEU0063	30 Vehicle Performance Testing	2.0	2.0	0.0	
VEU0042	31 Design of the Vehicle Controller	3.0	3.0	0.0	
VEU0071	32 Automotive Chassis Repair (II)	2.0	0.0	4.0	
VEU0040	33 Refrigeration Engineering and Design	3.0	3.0	0.0	
VEU0037	34 Engineering Material Applications	3.0	3.0	0.0	
VEU0048	35 Air Conditioning Engineering and Design	3.0	3.0	0.0	
VEU0043	36 Autonomous Vehicle Theory and Practice	3.0	3.0	0.0	
VEU0066	37 Ethics Engineering and Legal Practice	2.0	2.0	0.0	
VEU0065	38 Vehicle and Energy Evaluation Exercise	2.0	2.0	0.0	
VEU0067	39 Training for Professional Techniques (I)	3.0	3.0	0.0	
VEU0031	40 Maintenance and Repair of Electric Vehicle	3.0	3.0	0.0	
VEU0068	41 Training for Professional Techniques (II)	3.0	3.0	0.0	
VEU0052	42 Transportation Refrigeration and Air Conditioning	3.0	3.0	0.0	
VEU0055	43 Industry Business, Management and Marketing	3.0	3.0	0.0	
VEU0041	44 Vehicle System Modeling and Dynamic Analysis	3.0	3.0	0.0	
VEU0046	45 Design and Application of Thermal Energy Storage System	3.0	3.0	0.0	
VEU0020	46 Introduction to Vehicle Engineering	3.0	3.0	0.0	
VEU0021	47 Automotive Electronics	3.0	3.0	0.0	
VEU0073	48 Basic Refrigeration and Air Conditioning Technology	2.0	0.0	4.0	
VEU0023	49 Gasoline Engine Diagnosis	3.0	3.0	0.0	
VEU0024	50 Artificial Intelligence and Applications	3.0	3.0	0.0	
VEU0025	51 Principles and Applications of Sensors	3.0	3.0	0.0	
VEU0026	52 Renewable Energy	3.0	3.0	0.0	
VEU0027	53 Refrigeration and Air Conditioning Principle	3.0	3.0	0.0	
VEU0028	54 Vehicle Energy Storage Systems	3.0	3.0	0.0	
VEU0077	55 Vehicle Identification Technology	3.0	3.0	0.0	

IV. Free Elective Credits: 25.0 credits are required