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
110	32.0	53.0	22.0	21.0	128.0

I. General Course: 32.0 credits are required

Course Name	Credit(s)
1 Chinese 4.0 credits are required	
1-1 Chinese Reading and Thinking	2.0
1-2 Chinese Writing and Expression	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 Liberal Arts Course 8.0 credits are required	
3-1-1 Humanities and Arts 2.0 credits are required	
3-1-2 Social Sciences 2.0 credits are required	
3-1-3 Natural Sciences 2.0 credits are required	
3-1-4 Logic and Computing 2.0 credits are required	
3-2 Cross-domain Exploration 4.0 credits are required	
3-2-1 College Common Course	
3-2-2 Cross-domain Professional Discovery Course	
3-2-3 Introduction to University Studies	
3-3 Self-Directed Learning maximum credits are 4.0	
3-3-1 Inquiry Study	
3-3-2 MOOCs	
4 Physical Education 4.0 credits are required, 4 courses are least required	
5 Service-Learning 1 course is least required	
5-1 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: 53.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
VEU0002	1 Introduction to Energy Technology	2.0	2.0	0.0	
VEU0003	2 Electric Circuits (I)	3.0	3.0	0.0	
VEU0004	3 E Electrical Circuits Experiment	3.0	2.0	2.0	
VEU0007	4 Electronics (I)	3.0	3.0	0.0	
VEU0008	5 E Electronics Laboratory	3.0	2.0	2.0	
VEU0010	6 Engineering Mathematics (I)	3.0	3.0	0.0	
VEU0011	7 E Thermo-Dynamics (I)	3.0	3.0	0.0	
VEU0012	8 Internal Combustion Engine	3.0	3.0	0.0	
VEU0013	9 E Applied Mechanics	3.0	3.0	0.0	
VEU0014	10 Automatic Control Engineering	3.0	3.0	0.0	
VEU0016	11 Electric Vehicle	3.0	3.0	0.0	
VEU0072	12 Automotive Chassis Repair	3.0	2.0	2.0	
VEU0075	13 Introduction to Energy Technology	3.0	2.0	2.0	
VEU0076	14 Vehicle Basic Technology	3.0	2.0	2.0	
VEU0006	15 Introduction to Power Mechanics	3.0	3.0	0.0	
MAU0180	16 E Calculus B (I)	3.0	3.0	0.0	
MAU0181	17 E Calculus B (II)	3.0	3.0	0.0	
PHU0253	18 Fundamental Physics	3.0	3.0	0.0	

III. Elective Courses: 22.0 credits are required

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
VEU0077	1 Vehicle Identification Technology	3.0	3.0	0.0	
VEU0017	2 Computer Programming	3.0	3.0	0.0	
VEU0019	3 Engineering Graphics and Computer-Aided Design	3.0	3.0	0.0	
VEU0020	4 Introduction to Vehicle Engineering	3.0	3.0	0.0	
VEU0021	5 Automotive Electronics	3.0	3.0	0.0	
VEU0024	6 Artificial Intelligence and Applications	3.0	3.0	0.0	
VEU0025	7 Principles and Applications of Sensors	3.0	3.0	0.0	

Course Code	Course Name	Credit(s)	Credit Unit		Note
			Lecture Hour	Lab/Practice Hour	
VEU0026	8 Renewable Energy	3.0	3.0	0.0	
VEU0027	9 Refrigeration and Air Conditioning Principle	3.0	3.0	0.0	
VEU0028	10 Vehicle Energy Storage Systems	3.0	3.0	0.0	
VEU0029	11 Microprocessor	3.0	3.0	0.0	
VEU0030	12 Circuit Theory (II)	3.0	3.0	0.0	
VEU0031	13 Maintenance and Repair of Electric Vehicle	3.0	3.0	0.0	
VEU0032	14 Engineering Mathematics (II)	3.0	3.0	0.0	
VEU0033	15 Thermodynamics (II)	3.0	3.0	0.0	
VEU0034	16 Solar Photovoltaic Systems	3.0	3.0	0.0	
VEU0035	17 Wireless Communications System	3.0	3.0	0.0	
VEU0036	18 Vehicle Design	3.0	3.0	0.0	
VEU0037	19 Engineering Material Applications	3.0	3.0	0.0	
VEU0038	20 Technology of Energy Saving	3.0	3.0	0.0	
VEU0039	21 Heat Transfer	3.0	3.0	0.0	
VEU0040	22 Refrigeration Engineering and Design	3.0	3.0	0.0	
VEU0041	23 Vehicle System Modeling and Dynamic Analysis	3.0	3.0	0.0	
VEU0042	24 Design of the Vehicle Controller	3.0	3.0	0.0	
VEU0043	25 Autonomous Vehicle Theory and Practice	3.0	3.0	0.0	
VEU0044	26 Internet of Vehicle Technology	3.0	3.0	0.0	
VEU0045	27 Fluid Mechanics	3.0	3.0	0.0	
VEU0046	28 Design and Application of Thermal Energy Storage System	3.0	3.0	0.0	
VEU0047	29 Smart Grid	3.0	3.0	0.0	
VEU0048	30 Air Conditioning Engineering and Design	3.0	3.0	0.0	
VEU0049	31 Vehicle Alternative Fuels	3.0	3.0	0.0	
VEU0050	32 Image Recognition Technology	3.0	3.0	0.0	
VEU0051	33 Food Refrigeration	3.0	3.0	0.0	
VEU0052	34 Transportation Refrigeration and Air Conditioning	3.0	3.0	0.0	
VEU0053	35 Building Energy Conservation	3.0	3.0	0.0	
VEU0054	36 Indoor Air Quality	3.0	3.0	0.0	
VEU0055	37 Industry Business, Management and Marketing	3.0	3.0	0.0	
VEU0056	38 Microprocessors Experiments	3.0	2.0	2.0	
VEU0057	39 Internal Combustion Engine Test	3.0	2.0	2.0	
VEU0058	40 Energy Application Practice	3.0	2.0	2.0	
VEU0059	41 Diesel Engine Repair	3.0	2.0	2.0	
VEU0060	42 E Hybrid Vehicles	3.0	3.0	0.0	
VEU0061	43 Automotive Electric System Repair	3.0	2.0	2.0	
VEU0062	44 Renewable Energy Practices	3.0	2.0	2.0	
VEU0063	45 Vehicle Performance Testing	2.0	2.0	0.0	
VEU0064	46 Engine Rebuilding	3.0	2.0	2.0	
VEU0065	47 Vehicle and Energy Evaluation Exercise	2.0	2.0	0.0	
VEU0066	48 Ethics Engineering and Legal Practice	2.0	2.0	0.0	
VEU0067	49 Training for Professional Techniques (I)	3.0	3.0	0.0	
VEU0068	50 Training for Professional Techniques (II)	3.0	3.0	0.0	
VEU0071	51 Automotive Chassis Repair (II)	3.0	2.0	2.0	
VEU0073	52 Basic Refrigeration and Air Conditioning Technology	3.0	2.0	2.0	
VEU0074	53 Gasoline Engine Diagnosis	3.0	2.0	2.0	
VEU0069	54 E Special Topics (I)	2.0	2.0	0.0	
VEU0070	55 E Special Topics (II)	2.0	2.0	0.0	

IV. Free Elective Credits: 21.0 credits are required