

Bachelor of Science in Power and Renewable Energy  
Engineering

Program Viewbook  
Canadian University Dubai

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## Program Overview

The Bachelor of Science in Power and Renewable Energy Engineering (BScPREE) program at Canadian University Dubai is designed to meet the growing global demand for sustainable and efficient energy solutions. This interdisciplinary program integrates principles of electrical engineering, thermodynamics, and renewable energy systems to prepare students for roles in the energy sector.

Through a combination of theoretical coursework, hands-on laboratory experience, and real-world internships, students develop expertise in power generation, energy storage, and smart grid technology. The program emphasizes innovative problem-solving and sustainable design to address the energy challenges of the future.

## Program Completion Requirements

- The BScPREE degree shall be awarded to a student upon completing the following requirements:
- A student enrolled in the BScPREE program must have passed one hundred and forty (140) credit hours.
- A student must have achieved a CGPA of not less than 2.0 on a scale of 4.0 points.
- A student must have earned at least 50% of credits at CUD.
- The internship and graduation project must be completed at CUD.

## Program Structure

The structure of B.Sc. in Bachelor of Science in Power and Renewable Energy Engineering (BScPREE) program is as follows:

Requirements	Compulsory Cr. H	Elective Cr. H	Total Cr. H
University Requirement-General Education	21	--	21
Department (Core)	79	-	79
Major	37	3	40
<b>Total</b>	<b>137</b>	<b>3</b>	<b>140</b>

### University Requirements [General Education Courses - 21 Credits]

Course Code and Title		Prerequisite	Cr. Hrs.
<b>Compulsory Courses (18 Credit Hours)</b>			
LNG 181	English I for Engineering & Computing	None	3-0-3
LNG 182	English II for Engineering & Computing	LNG 181	3-0-3
GED 190	Emirati Studies	None	3-0-3
GED 255	Critical Thinking and Problem Solving	LNG 182 or LNG 172	3-0-3
ENT 141	Fundamentals of Innovation and Entrepreneurship 1	None	2-0-2
ENT 142	Fundamentals of Innovation and Entrepreneurship 2	ENT 141	0-2-1
ENT 241	Entrepreneurship 1	ENT 142	2-0-2
ENT 242	Entrepreneurship 2	ENT 241	0-2-1
<b>Elective Courses (Humanities – 03 Credits)</b>			
GED 110	Modern Art Appreciation	None	2-2-3
GED 111	Music Appreciation and Communication	None	3-0-3
GED 191	Islamic Studies	None	3-0-3
GED 196	Communication Skills in Arabic	None	3-0-3
GED 205	Psychology in Everyday Life	LNG 182 or LNG 172	3-0-3
GED 324	Ethical Reasoning for Today's World	LNG 182 or LNG 172	3-0-3
GED 330	Introduction to Canadian Studies	None	3-0-3

### Program Core Requirements [Core Courses - 79 Credits]

Course Code and Title		Pre/Co-requisite	Cr. Hrs.
<b>Program Core Requirement – Compulsory Courses (79 Credit Hours)</b>			
MTH 112	Calculus I	Pass Math Placement Test or MTH 012	3-0-3

Course Code and Title		Pre/Co-requisite	Cr. Hrs.
MTH 113	Calculus II	MTH 112	3-0-3
MTH 114	Linear Algebra	MTH 112	3-0-3
MTH 120	Discrete Mathematics	None	3-0-3
MTH 130	Probability and Statistics	MTH 112	3-0-3
MTH 212	Calculus III	MTH 113	3-0-3
MTH 220	Ordinary Differential Equations	MTH 212	3-0-3
SCI 210	Modern Physics	None	2-2-3
SCI 220	Engineering Mechanics	MTH 112	3-0-3
SHS 103	Chemistry	None	2-2-3
ENG 102	Digital Logic	None	2-2-3
ENG 122	Engineering Graphics and Design	None	0-2-1
NET 213	Microprocessors and Microcontrollers	ENG 102 or NET 100	2-2-3
ENG 213	Electric Circuit I	SCI 210	2-2-3
ENG 222	Engineering Electromagnetics	MTH 212, SCI 210	2-2-3
ENG 243	Electric Circuit II	ENG 213	2-2-3
ENG 225	Electronics I	ENG 213	2-2-3
ENG 312	Electronics II	ENG 225	2-2-3
ENG 315	Control Systems	MTH 220	3-0-3
ENG 317	Digital Signal Processing	MTH 220	3-0-3
ENG 323	Electric Machines	ENG 213	2-2-3
ELC 321	Instrumentation and Measurements	ENG 243	2-2-3
SWS 110	Programming I	None	2-2-3
SWS 111	Programming II	SWS 110	2-2-3
BUS 311	Engineering Economy	MTH 130	3-0-3
BCS 407	Artificial Intelligence	SWS 111 or BCS 206, BCS 222	3-0-3
ENG 416	Professional and Engineering Ethics	Min. 60 Cr. Hrs.	3-0-3

### Program Major Requirements [40 Credits]

Course Code and Title		Pre/Co-requisite	Cr. Hrs.
<b>Program Major Requirement – Compulsory Courses (37 Credit Hours)</b>			
DES 320	Design for Sustainability	SCI 220	2-2-3
PRE 252	Thermo Dynamics and Fluid Mechanics	SCI 210	3-0-3
PRE 361	Power Electronics	ENG 312	2-2-3
PRE 362	Solar Energy	DES 320	2-2-3
PRE 471	Wind Energy	DES 320	2-2-3
PRE 472	Electrical Drivers and Convertors	PRE 361	2-2-3
PRE 473	Energy Conversion and Storage	PRE 361	3-0-3

Course Code and Title		Pre/Co-requisite	Cr. Hrs.
PRE 474	Power Transmission and Distribution	PRE 361, ENG 323	2-2-3
PRE 482	Power Systems Quality	PRE 474	2-2-3
PRE 481	Smart Grids	PRE 474	2-2-3
ENG 420	Internship	90 Cr. Hrs. & CGPA $\geq$ 2.0	3-0-3
ENG 411	Graduation Project-1	Completed 100 Cr. Hrs.	0-4-2
ENG 412	Graduation Project-2	ENG 411	0-4-2
<b>Program Major Requirement – Elective Courses (3 Credit Hours)</b>			
PRE 485	Internet of things	NET 213	2-2-3
PRE 486	Digital Control Systems	ENG 315	2-2-3
PRE 487	Electromagnetic Compatibility	ENG 222	3-0-3

## Study Plan – BScPREE

Sem.	Course Code	Course Title	Prerequisite	Cr. Hrs.
Semester 1	LNG 181	English I for Engineering & Computing	None	3-0-3
	ENG 102	Digital Logic	None	2-2-3
	MTH 112	Calculus I	Pass Math Placement Test or MTH 012	3-0-3
	SHS 103	Chemistry	None	2-2-3
	SWS 110	Programming I	None	2-2-3
	ENT 141	Fundamentals of Innovation and Entrepreneurship 1	None	2-0-2
	<b>Total</b>			<b>17</b>
Semester 2	LNG 182	English II for Engineering & Computing	LNG 181	3-0-3
	ENT 142	Fundamentals of Innovation and Entrepreneurship 2	ENT 141	0-2-1
	MTH 113	Calculus II	MTH 112	3-0-3
	MTH 120	Discrete Mathematics	None	3-0-3
	ENG 122	Engineering Graphics and Design	None	0-2-1
	SWS 111	Programming II	SWS 110	2-2-3
	SCI 210	Modern Physics	None	2-2-3
	<b>Total</b>			<b>17</b>
Semester 3	MTH 130	Probability and Statistics	MTH 112	3-0-3
	MTH 212	Calculus III	MTH 113	3-0-3
	NET 213	Microprocessors and Microcontrollers	ENG 102 or NET 100	2-2-3
	ENG 213	Electric Circuit I	SCI 210	2-2-3
	ENT 241	Entrepreneurship 1	ENT 142	2-0-2
	SCI 220	Engineering Mechanics	MTH 112	3-0-3
	<b>Total</b>			<b>17</b>
Semester 4	MTH 114	Linear Algebra	MTH 112	3-0-3
	MTH 220	Ordinary Differential Equations	MTH 212	3-0-3
	ENG 225	Electronics I	ENG 213	2-2-3
	ENG 243	Electric Circuit II	ENG 213	2-2-3

	ENT 242	Entrepreneurship 2	ENT 241	0-2-1
	PRE 252	Thermo Dynamics and Fluid Mechanics	SCI 210	3-0-3
	Total			16
Semester 5	GED XXX	Humanity Elective		3-0-3
	GED 255	Critical Thinking and Problem Solving	LNG 182 or LNG 172	3-0-3
	ENG 222	Engineering Electromagnetics	MTH 212, SCI 210	2-2-3
	ENG 312	Electronics II	ENG 225	2-2-3
	ENG 317	Digital Signal Processing	MTH 220	3-0-3
	DES 320	Design for Sustainability	SCI 220	2-2-3
	Total			18
Semester 6	BUS 311	Engineering Economy	MTH 130	3-0-3
	ENG 315	Control Systems	MTH 220	3-0-3
	ENG 323	Electric Machines	ENG 213	2-2-3
	ELC 321	Instrumentation and Measurements	ENG 243	2-2-3
	PRE 361	Power Electronics	ENG 312	2-2-3
	PRE 362	Solar Energy	DES 320	2-2-3
	Total			18
Semester 7	ENG 411	Graduation Project-1	Completed 100 Cr. Hrs.	0-4-2
	ENG 416	Professional and Engineering Ethics	Min 60 Cr. Hrs.	3-0-3
	PRE 471	Wind Energy	DES 320	2-2-3
	PRE 472	Electrical Drivers and Convertors	PRE 361	2-2-3
	PRE 473	Energy Conversion and Storage	PRE 361	3-0-3
	PRE 474	Power Transmission and Distribution	PRE 361, ENG 323	2-2-3
	Total			20
Semester 8	GED 190	Emirati Studies	None	3-0-3
	BCS 407	Artificial Intelligence	SWS 111 or BCS 206, BCS 222	3-0-3
	ENG 412	Graduation Project-2	ENG 411	0-4-2
	PRE 481	Smart Grids	PRE 474	2-2-3
	PRE 482	Power Systems Quality	PRE 474	2-2-3
	PRE-XXX	Major Elective 1		3
	Total			14
	Internship to be taken after completion of 90 Cr. Hrs. and CGPA 2.0 or more.			3
Total			140	