

Combined BSc (ENGINEERING PHYSICS) and MSc (QUANTUM ENGINEERING-software) Program (2024-25 Catalog)

NAME: \_\_\_\_\_

		Pre-Req.	Term	Math &	Engin.	Gen.	Total	Term Taken		
				Basic Sci.	Topics	Educ.			Other	
T E	Fresh. I	MATH111-Calculus I		I, II, S	4.0			4.0		
		CHGN121-Chemistry I		I, II	4.0			4.0		
		HASS100-Nature & Human Val.		I,II			3.0	3.0		
		CSCI128-Comp Sci for STEM		I, II, S	0.0	3		3.0		
		CSM101-Success Seminar						1	1.0	
		PAGN2xx-Physical Education		I				1	1.0	
		Total				8.0	3.0	3.0	2.0	16.0
T E	Fresh. II	MATH112-Calculus II	MA111	I, II, S	4.0			4.0		
		CHGN122-Chemistry II	CH121	I, II, S	4.0			4.0		
		PHGN100-Physics I Mechan.	co-MA112	I, II, S	4.0			4.0		
		EDNS151-Cornerstone Design I		I, II		3.0	√		3.0	
		Total				12.0	3.0	0.0	0.0	15.0
R M	Soph. I	MATH213- Calculus III	MA112	I, II, S	4.0			4.0		
		PHGN200-Physics II E&M	PH100, co-MA213	I, II, S	4.0			4.0		
		CSCI250-Python Based Computing	co-MA213, co-PH200	I		3.0			3.0	
		HASS200-Global Studies	HASS100	I, II			3.0		3.0	
		CSM202 - Success Seminar		I, II				1.0	1.0	
		Total				8.0	3.0	3.0	0.0	15.0
R M	Soph. II	MATH225/235-Differential Eq.	MA213	I,II,S/II	3.0			3.0		
		MATH332/342-Linear Algebra	MA213 or 223 or 224	I, II/II	3.0			3.0		
		PHGN215-Analog Circuits	PH200	II		4.0			4.0	
		PHGN300/310-Mod. Physics I**	PH200, co-MA225/235	I,II	3.0				3.0	
		EDNS251--Cornerstone Design II■	EDNS151	I, II		3.0	√		3.0	
		Total				9.0	7.0	0.0	0.0	16.0
Summer	PHGN384-Summer Field Sess.	PH300/310,PH215,CS250	S		6.0	√		6.0		

\*\*The Physics Department recommends that you take PHGN310

■ Physics allows any flavor of Practice of Design.

√ Significant Design

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		Pre-Req.	Term	Math & Basic Sci.	Engin. Topics	Gen. Educ.	Other	Total	Term Taken	
<b>T E R M</b>	Jun. I	PHGN311-Intro to Math Phys.	MA225/235,332/342, PH300/310,CS250	I	3.0			3.0		
		PHGN315-Advanced Lab I	PH300/310,PH384	I		2.0 √		2.0		
		PHGN317-Digital Circuits	PH215 or EENG282, CS250	I		3.0 √		3.0		
		PHGN350-Interm. Mechanics	PH200, co-PH311	I		4.0		4.0		
		Culture & Society Elective I mid-level^					3.0		3.0	
		<b>Total</b>			3.0	9.0	3.0	0.0	15.0	
	Jun. II	PHGN320-Modern Physics II	PH300/310	II	4.0				4.0	
		PHGN326-Advanced Lab II	PH315	II		2.0 √			2.0	
		PHGN341-Thermal Physics	CHGN122/125, PH311	II		3.0			3.0	
		PHGN361-Intermediate E&M	PH200, PH311	II		3.0			3.0	
		EBGN321-Engineering Economics		I,II			3.0		3.0	
		<b>Total</b>			4.0	8.0	3.0	0.0	15.0	
	Sen. I	PHGN471-Sr. Design Principles	PH384, PH326, co PH481	I		0.5 √			0.5	
		PHGN481-Sr. Design Practice I#	PH384, PH326, co-PH471	I		2.5 √			2.5	
		PHGN462-EM Waves/Optic.PH	PH361	I		3.0			3.0	
		Culture & Society Elective II mid-level^					3.0		3.0	
		PHGN519-Intro to Quan. Info.	MATH332	I	3.0				3.0	
		Free Elective						3.0	3.0	
	<b>Total</b>			3.0	6.0	3.0	3.0	15.0		
	Sen. II	PHGN472-Sr. Design Principles	PH384, PH326, co PH482	II		0.5 √			0.5	
PHGN482-Sr. Design Practice II#		PH384, PH326, co-PH472	II		2.5 √			2.5		
Engineering Topics Elective					3.0			3.0		
Culture & Society Elective III 4xx-level^						3.0		3.0		
PHGN545-Quan. Many-body Physics, or CSCI581-Quantum Programming		PHGN519	II	3.0				3.0		
Free Elective							3.0	3.0		
<b>Total</b>				3.0	6.0	3.0	3.0	15.0		
<b>TOTAL</b>				50.0	51.0	18.0	8.0	128.0		

^ Culture & Society includes HASS & EBGN courses (see <https://www.mines.edu/registrar/core-curriculum/>)

# Honors courses PHGN491/492 may be substituted with instructor's consent.

√ Significant Design