

ADVANCED WOOD MANUFACTURING OPTION

This option is offered within the following major(s):

- Renewable Materials - College of Forestry (<http://catalog.oregonstate.edu/college-departments/forestry/wood-science-engineering/renewable-materials-bs-hbs>)

This option complements the Renewable Materials core curriculum that develops students' knowledge of properties and behavior of bio-based materials. It adds a strong foundation in how the products are manufactured, as well as how the manufacturing processes are designed, managed, controlled, and optimized. Students will be exposed to important advanced topics such as automation, scanning and optimization systems, computer numerically controlled (CNC) machining, robotics, 3D printing, as well as how emerging topics such as the Internet of Things (IoT) and Big Data may impact the future of manufacturing.

Option Code: 793

Code	Title	Hours
Advanced Wood Manufacturing Core		
BA 215	FUNDAMENTALS OF ACCOUNTING	4
CH 123	*GENERAL CHEMISTRY	5
ECON 201	*INTRODUCTION TO MICROECONOMICS	4
ECON 202	*INTRODUCTION TO MACROECONOMICS	4
ENGR 390	ENGINEERING ECONOMY	3
IE 255	INTRODUCTORY QUANTITATIVE ANALYSIS OF INDUSTRIAL AND MANUFACTURING SYSTEMS	3
or ST 314	INTRODUCTION TO STATISTICS FOR ENGINEERS	
IE 285/MFGE 285	INTRODUCTION TO INDUSTRIAL AND MANUFACTURING ENGINEERING	3
IE 366	WORK SYSTEMS ENGINEERING	4
IE 367	PRODUCTION PLANNING AND CONTROL	4
MTH 251	*DIFFERENTIAL CALCULUS	4
MTH 252	INTEGRAL CALCULUS	4
Select one PH course series:		12-15
PH 201 & PH 202 & PH 203	*GENERAL PHYSICS and *GENERAL PHYSICS and *GENERAL PHYSICS	
PH 211 & PH 212 & PH 213	*GENERAL PHYSICS WITH CALCULUS and *GENERAL PHYSICS WITH CALCULUS and *GENERAL PHYSICS WITH CALCULUS	
WSE 350	SECONDARY PRODUCTS DESIGN AND MANUFACTURING	3
WSE 351	ADVANCED CAD: COMPUTER AIDED DESIGN	3
WSE 352	CAM FOR THE CNC ROUTER AND LASER ENGRAVER	3
WSE 425	TIMBER TECTONICS IN THE DIGITAL AGE	4
WSE 450	ENTREPRENEURIAL PRODUCT DEVELOPMENT I	3
WSE 451	ENTREPRENEURIAL PRODUCT DEVELOPMENT II	3
WSE 455	INDUSTRIAL MARKETING IN THE FOREST SECTOR	3
WSE 461	BIO-BASED PRODUCTS MANUFACTURING	4
WSE 462	ADVANCED MANUFACTURING 1	4
WSE 463	ADVANCED MANUFACTURING 2	4
Total Hours		88-91

Baccalaureate Core Courses (18)

(Not satisfied by the Renewable Materials core or the option.)

Courses meeting other baccalaureate core requirements for the following categories not specified by the Renewable Materials Core

or the option can be found in the OSU Catalog online at <https://catalog.oregonstate.edu/>

Code	Title	Hours
	Cultural Diversity	3
	Difference, Power, and Discrimination	3
	Literature and Arts	3
	Western Culture	3
	Science, Technology, and Society Synthesis	3
	Contemporary Global Issues	3

Plus additional Electives sufficient to ensure 180 total credits (60 must be upper division).

* Baccalaureate Core Course (BCC)

^ Writing Intensive Course (WIC)

Option Code: 793

Course	Title	Hours
First Year		
Fall		
CH 121	GENERAL CHEMISTRY	5
COMM 111 or COMM 114	*PUBLIC SPEAKING or *ARGUMENT AND CRITICAL DISCOURSE	3
FOR 111	INTRODUCTION TO FORESTRY	3
Bacc Core: Cultural Diversity		3-4
	Hours	14-15
Winter		
CH 122	*GENERAL CHEMISTRY	5
FOR 112	COMPUTING APPLICATIONS IN FORESTRY	3
HHS 231	*LIFETIME FITNESS FOR HEALTH	2
MTH 251	*DIFFERENTIAL CALCULUS	4
WSE 111	RENEWABLE MATERIALS FOR A GREEN PLANET	2
	Hours	16
Spring		
CH 123	*GENERAL CHEMISTRY	5
MTH 252	INTEGRAL CALCULUS	4
WR 121	*ENGLISH COMPOSITION	3
PAC Course		1
	Hours	13
Second Year		
Fall		
ECON 201	*INTRODUCTION TO MICROECONOMICS	4
IE 285 or MFGE 285	INTRODUCTION TO INDUSTRIAL AND MANUFACTURING ENGINEERING or INTRODUCTION TO INDUSTRIAL AND MANUFACTURING ENGINEERING	3
PH 201 or PH 211	*GENERAL PHYSICS or *GENERAL PHYSICS WITH CALCULUS	4-5
WSE 250	CAD: COMPUTER AIDED DESIGN	3
	Hours	14-15
Winter		
ECON 202	*INTRODUCTION TO MACROECONOMICS	4
PH 202 or PH 212	*GENERAL PHYSICS or *GENERAL PHYSICS WITH CALCULUS	5
WSE 210	*RENEWABLE MATERIALS TECHNOLOGY AND UTILIZATION	4
WR 214 or WR 327	*WRITING IN BUSINESS or *TECHNICAL WRITING	3
	Hours	16
Spring		
FES 240	*FOREST BIOLOGY	4

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IE 255 or ST 314	INTRODUCTORY QUANTITATIVE ANALYSIS OF INDUSTRIAL AND MANUFACTURING SYSTEMS or INTRODUCTION TO STATISTICS FOR ENGINEERS	3
PH 203 or PH 213	*GENERAL PHYSICS or *GENERAL PHYSICS WITH CALCULUS	4-5
WSE 225	DEVELOPMENTS OF BUILDING DESIGN WITH RENEWABLE MATERIALS	3
Hours		14-15

Third Year

Fall

BA 215	FUNDAMENTALS OF ACCOUNTING	4
WSE 320	ANATOMY OF RENEWABLE MATERIALS	3
WSE 321	CHEMISTRY OF RENEWABLE MATERIALS	3
WSE 455	INDUSTRIAL MARKETING IN THE FOREST SECTOR	3
Hours		13

Winter

IE 366	WORK SYSTEMS ENGINEERING	4
WSE 322	PHYSICAL AND MECHANICAL PROPERTIES OF RENEWABLE MATERIALS	4
WSE 350	SECONDARY PRODUCTS DESIGN AND MANUFACTURING	3
Bacc Core: Literature & the Arts		3-4
Hours		14-15

Spring

ENGR 390	ENGINEERING ECONOMY	3
WSE 324	RENEWABLE MATERIALS LABORATORY	3
WSE 351	ADVANCED CAD: COMPUTER AIDED DESIGN	3
Bacc Core: Contemp. Global Issues		3-4
Elective		3-4
Hours		15-17

Fourth Year

Fall

IE 367	PRODUCTION PLANNING AND CONTROL	4
Bacc Core: Difference, Power, and Discrimination		3-4
Elective		3-4
WSE 352	CAM FOR THE CNC ROUTER AND LASER ENGRAVER	3
WSE 461	BIO-BASED PRODUCTS MANUFACTURING	4
WSE 465	RENEWABLE MATERIALS MANUFACTURING EXPERIENCE	2
Hours		19-21

Winter

WSE 450	ENTREPRENEURIAL PRODUCT DEVELOPMENT I	3
WSE 453	*FOREST PRODUCTS BUSINESS	3
WSE 462	ADVANCED MANUFACTURING 1	4
Bacc Core: Western Culture		3-4
Elective		3-4
Hours		16-18

Spring

WSE 425	TIMBER TECTONICS IN THE DIGITAL AGE	4
WSE 451	ENTREPRENEURIAL PRODUCT DEVELOPMENT II	3
WSE 463	ADVANCED MANUFACTURING 2	4
Bacc Core: Science, Tech & Society		3-4
Hours		14-15
Total Hours		178-189