



Product Design & Development

Curriculum Guide

PDD & PDD

Technical Studies - Wood Science Technology - Product Design and Development Specialization

Award: Associate of Applied Science

Length: A full-time student may complete this program in two years.

Purpose: The Wood Science Product Design and Development Specialization is designed to prepare students with the knowledge, skills, and foundational concepts necessary to design, engineer, and produce a product utilizing wood as a primary design medium and incorporating CAD/CAM/CNC technology. These skills include: critical thinking, project planning, managing creativity and design, form and function, product management through customer-focused innovation. Completion of this program will prepare the student for work in various positions in the manufacturing industry.

Occupational Objectives: The program is designed to provide participants the creative and practical skills to be gainfully employed in manufacturing, supervisory or management positions in the wood manufacturing industry.

Admission Requirements: Students must meet the general admission requirements of the College. All students who are not proficient in communication and computation skills will be required to correct deficiencies through developmental courses.

Program Description: The program includes four educational components: namely, general education, technical foundations, content skills and knowledge, and work-based learning. The content skills and knowledge and work-based learning components are specific to wood science.

Program Requirements: To receive the AAS degree, the student must complete a minimum of 65 credits with a grade point average of 2.0 or better.

General Education		19 Crs.
ENG 111	College Composition I	3
<i>Students may elect one of the following courses</i>		
HUM 165	Controversial Issues in Contemporary American Culture	3
PHI 100	Intro. To Philosophy	3
PHI 226	Social Ethics	3
REL 230	Religions of the World	3
HUM 246	Creative Thinking	3
<i>Students may elect two of the following courses</i>		
PSY 126	Psychology for Business & Industry	3
PHI 115	Practical Reasoning	3
PSY 200	Principles of Psychology	3
ECO 120	Survey of Economics	3
ECO 201	Principles of Economics I	3
PSY 230	Developmental Psychology	3
SOC 200	Principles of Sociology	3
MTH 103	Applied Technical Mathematics I or	3
MTH 163	Pre-calculus I	3
HLT 116	Personal Wellness	3
SDV 100	College Success Skills	1
Technical Foundations		19 Crs.
DRF 114	Drafting I or	3
MAC 150	Introduction to Computer Aided Manufacturing	3
ITE 115	Introduction to Microcomputer Applications or	4
ART 130	Introduction to Multimedia	4
DRF 233	Computer Aided Drafting III	3
IND 181	World Class Manufacturing or	3
BUS 165	Small Business Management	3
ENG 115	Technical Writing	3
IND 137	Teamwork and Problem Solving	3
Content, Skills and Knowledge		21 Crs.
IND 161	Product Design and Development I	5
IND 162	Product Design and Development II	5
ART 283	Computer Graphics	3
IND 163	Manufacturing Applications and Design I	3
FUR 298	Seminar & Projects	5
Work-based Learning		6 Crs.
IND 190	Coordinated Internship	6

Total Minimum Credits for the Associate of Applied Science Degree in Technical Studies –
Wood Science Technology - Product Design and Development Specialization.....**65**

ENG 111-112 College Composition I-II (3 cr. each)

Develops writing ability for study, work, and other areas of writing based on experience, observation, research, and reading of selected literature. Guides students in learning writing as a process: understanding audience and purpose, exploring ideas and information, composing, revision, and editing. Supports writing by integrating, composing, revising, and editing. Supports writing by integrating experiences in thinking, reading, listening, and speaking. Lecture 3 hours per week.

HUM 165

Controversial Issues in Contemporary American Culture (3 cr.) Introduces students to selected issues in contemporary American culture. Includes topic areas ranging from welfare reform, economic development, privacy, environmental protection and conservation, evolution vs. creation, to family values, and special interest lobbying in our state and national governments. Focuses on the development of the student's critical thinking skills by analyzing, evaluating, and reflecting on opposing sides of the same issue as expressed by public leaders, special interest groups and academicians. Lecture 3 hours per week.

PHL 100 Introduction to Philosophy (3 cr.)

Presents an introduction to philosophical problems and perspectives with emphasis on the systematic questioning of basic assumptions about meaning, knowledge, reality, and values. Requires ENG 111 eligibility. Lecture 3 hours/week.

PHL 226 social ethics (3 cr.)

Provides a critical examination of moral problems and studies the application of ethical concepts and principles to decision-making. Topics may include abortion, capital punishment, euthanasia, man and the state, sexuality, war and peace, and selected issues of personal concern. Requires ENG 111 as a co-requisite. Lecture 3 hours per week.

REL 230 religions of the World (3 cr.)

Introduces the religions of the world with attention to origin, history, and doctrine. Lecture 3 hours per week.

HUM 246 Creative thinking (3 cr.)

Examines and analyzes creative and effective thinking processes with applications in individual and group projects to solve business, scientific, environmental, and other practical problems. Lecture 3 hours per week.

PSY 126 Psychology for business and Industry (3 cr.)

Focuses on the application of psychology to interpersonal relations and the working environment. Includes topics such as group dynamics, motivation, employee-employer relationship, interpersonal communications, and techniques for selection and supervision of personnel. Lecture 3 hours per week.

PHL 115 Practical reasoning (3 cr.)

Studies informal logic and language techniques as they relate to reasoning and argument. Provides practice in analyzing arguments and constructing sound arguments. Requires ENG 111 eligibility. Lecture 3 hours per week.

PSY 200 Principles of Psychology (3 cr.)

Surveys the basic concepts of psychology. Covers the scientific study of behavior, behavioral research methods and analysis, and theoretical interpretations. Includes topics such as: physiological mechanisms, sensation/perception, motivation, learning, personality, psychopathology, therapy, and social psychology. Lecture 3 hours per week.

ECO 120 survey of economics (3 cr.)

Presents a broad overview of economic theory, history, development, and application. Introduces terms, definitions, policies, and philosophies of market economies. Provides some comparison with other economic systems. Includes some degree of exposure to microeconomic and macroeconomic concepts. Lecture 3 hours per week

ECO 201 Principles of Macroeconomics (3 cr.)

Introduces macroeconomic principles and their relationship to current economic conditions. Presents the concept of a free enterprise economy and how it compares to other economic systems. Introduces the concepts of supply and demand and discusses how markets allocate resources. Presents measures of economic activity and discusses the problems of economic instability - inflation and unemployment. Discusses the various approaches to achieving economic stability including classical, Keynesian, monetarist and supply side positions. The structure of the banking system and the role of the Federal Reserve are discussed. Lecture 3 hours per week.

PSY 230 Developmental Psychology (3 cr.)

Studies the development of the individual from conception to death. Follows a life-span perspective on the development of the person's physical, cognitive, and psychosocial growth. Lecture 3 hours per week.

SOC 200 Principles of sociology (3 cr.)

Introduces fundamentals of social life. Presents significant research and theory in areas such as culture, social structure, socialization, deviance, social stratification, and social institutions. A student taking SOC 200 may not enroll in SOC 201 or 202. Lecture 3 hours per week

MTH 103-104 applied technical Mathematics I-II (3 cr. each)

Presents a review of arithmetic, elements of algebra, geometry, and trigonometry. Directs applications to specialty areas. Prerequisites: a placement recommendation for MTH 103 and one unit of high school mathematics or equivalent. Lecture 3 hours per week.

MTH 163 Precalculus I (3 cr.)

Presents college algebra, matrices, and algebraic, exponential, and logarithmic functions. Prerequisites: a placement recommendation for MTH 163 and Algebra I, Algebra II, and Geometry or equivalent. (Credit will not be awarded for both MTH 163 and MTH 166.) Lecture 3 hours per week.

HLT 116 Personal Wellness (2-3 cr.)

Explores the relationship between personal health and physical fitness as they apply to individuals in today's society. Includes nutrition, weight control, stress, conditioning, and drugs. Lecture 3 hours per week.

SDV 100 College success skills (1 cr.)

Assists students in transition to colleges. Provides overviews of college policies, procedures, and curricular offerings. Encourages contacts with other students and staff. Assists students toward college success through information regarding effective study habits, career and academic planning, and other college resources available to students. May include English and math placement testing. It is strongly recommended that students take within their first 15 credits. Required for graduation. Lecture 1 hour per week.

DRF 114-115 Drafting I-II (4 cr. each)

Focuses on instruments, geometric construction, orthographic projection, sections and conventions, pictorial drawings, isometric principles, oblique drawing, and dimensioning. Prerequisite: for DRF 115: DRF 114. Lecture 1 hour. Laboratory 9 hours. Total 10 hours per week.

MAC 150 Introduction to Computer-aided Manufacturing (3 cr.)

Introduces computer aided manufacturing (CAM) with emphasis on programming of numerical control machinery. Teaches program writing procedures using proper language and logic and Smart Cam programming software to produce numerical control code for machines. Teaches basic computer usage, 2-D and 3-D CAD-CAM integration, and code-to machine transfer. Prerequisite: MAC 122) Lecture 2 hours. Laboratory 3 hours. Total 5 hours per week.

ITE 115 Introduction to Computer applications and Concepts (3-4 cr.)

Covers computer concepts and Internet skills and uses a software suite which includes word processing, spreadsheet, database, and presentation software to demonstrate skills required for computer literacy. Recommended prerequisite keyboarding skills. Lecture 3 hours. Laboratory 2 hours. Total 5 hours per week.

ART 130 Introduction to Multimedia (4 cr.)

Introduces the student to the basic components of multimedia: text, graphics, animation, sound, and video, and explores how the components combine to create a multimedia product. Emphasizes the design aspects of multimedia projects and teaches the techniques required to develop a presentation. Lecture 2 hours. Laboratory 4 hours. Total 6 hours per week.

DRF 233 Computer aided Drafting III (3 cr.)

Exposes student to 3-D and modeling. Focuses on proficiency in Production drawing using a CAD system. Lecture 2 hours. Laboratory 2 hours. Total 4 hours per week.

IND 181 World Class Manufacturing (3 cr.)

Studies the principles and applications of the globalization of industry. Emphasizes the fundamentals of interpersonal/ team process, organization skills, total quality tools for continuous improvement, statistical process control, manufacturing resource planning and just-in-time. Lecture 3 hours per week.

BUS 165 small business Management (3 cr.)

Identifies management concerns unique to small businesses. Introduces the requirements necessary to initiate a small business, and identifies the elements comprising a business plan. Presents information establishing financial and administrative controls, developing a marketing strategy, managing business operations, and the legal and government relationships specific to small businesses. Lecture 3 hours per week.

ENG 115 technical Writing (3 cr.)

Develops ability in technical writing through extensive practice in composing technical reports and other documents. Guides students in achieving voice, tone, style, and content in formatting, editing, and graphics. Introduces students to technical discourse through selected reading. Prerequisite: ENG 131 or ENG 111. Lecture 3 hours per week.

IND 137 teamwork and Problem solving (3 cr.)

Studies team concepts and problem solving techniques to assist project teams in improving quality and productivity. Provides knowledge of how to work as a team, plan and conduct good meetings, manage logistics and details, gather useful data, communicate the results and implement changes. Lecture 3 hours per week.

IND 161 Product Design and Development I (5 cr.)

Introduces the student to foundational concepts and tools in the design and development of products utilizing wood or an alternative design material

IND 162 Product Design and Development II (5 cr.)

Advancement of the foundational concepts and tools in the design and development of products utilizing wood or an alternative design material

ART 283 Computer graphics I (3 - 4 cr.)

Utilizes microcomputers and software to produce computer graphics. Employs techniques learned to solve studio projects which reinforce instruction and are appropriate for portfolio use

FUR 298 seminar and Project (1-5 cr.)

Requires completion of a project or research report related to the student's occupational objectives and a study of approaches to the selection and pursuit of career opportunities in the field. Variable hours.

IND 190 - 290 Coordinated Internship (3 crs. each)

Supervised on-the-job training in selected business, industrial or service firms coordinated by the College.


For More Information, Contact:

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A Signature Program of the
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