APPLIED GENERAL AND TECHNICAL STUDIES

The Department’s applied and technical courses provide students with a comprehensive, flexible, liberal arts education. Most of its general education courses in English, mathematics, and the social sciences are part of the Ohio Transfer Module, and they provide a solid foundation for every degree or career. Students who take our courses learn how to analyze information, formulate solutions, and communicate clearly and concisely.

The Department’s professors focus on teaching and learning. As a result, its innovative faculty enhance classroom learning with special community projects, the use of multimedia technology, and/or activities that keep students engaged.

202000AA: Associate of Arts

The Associate of Arts degree cultivates in students the habit of life-long learning through a diverse curriculum and teaches students to think critically and creatively about their perceptions of ideas, events, and people. This degree is designed to position the student for successful employment, career advancement, or more focused study at the baccalaureate level.

202005AS: Associate of Science

The Associate of Science degree teaches students to think critically and creatively about their perceptions of ideas, events, and people. This degree is for students who would like to pursue a science based degree. Core curriculum emphasizes mathematics and science, but it also includes English, history, and social studies, as well as fundamental skills in analysis, research, composition and reading comprehension. This science intensive degree is designed to position the student for successful employment, career advancement, or more focused study in STEM (science, technology, engineering and mathematics) fields at the baccalaureate level.

230000ATS: Associate of Technical Studies

The Associate of Technical Studies program is available for adult students whose educational objectives and interests cannot be met through one of the formal associate degree programs.

This program enables students to combine certifications (institutional, state, national) earned through an educational entity or a place of employment, with general education courses to meet the associate degree requirements.

- Science, AS
- Supervision and Management, Certificate
- Technical Mathematics, Certificate
- Technical Studies, ATS

English - Applied General and Technical Studies (2020)

2020:120 Writing and Editing (1 Credit)
Examination of the editing process of writing. Focuses on developing a clear, effective, and correct professional writing style appropriate for academic and business documents.

2020:121 English (3 Credits)
English composition focused on inventive writing, essay structure, process, consideration of strength, source of evidence, and citation; and development options leading to persuasion and argument.

Gen Ed: Tier 1 - Writing First Course

2020:123 Writing for Presentations (1 Credit)
A writing intensive course that focuses on the rhetorical and theoretical challenges and considerations of effective presentations.

2020:216 Collaborative Writing (1 Credit)
Prerequisite: 3300:111 or 2020:121 or equivalent. A writing course that focuses on strategies and techniques for successful collaborative writing in the workplace.

2020:220 Writing and Research (1 Credit)
Prerequisite: 2020:121 or 3300:111 or equivalent. Practical examination of writing effectively and professionally about primary and secondary research sources in the student’s choice of several citation methods.

2020:222 Technical Report Writing (3 Credits)
Prerequisite: 2020:121 or 3300:110 or 3300:111 or equivalent. Prepares students to write the types of reports most often required of technicians, engineers, and scientists. Includes types of reports, memoranda, and letters; techniques of research, documentation and oral presentations.

Gen Ed: Tier 1 - Writing Second Course

2020:224 Writing for Advertising (3 Credits)
Prerequisite: 2020:121 or 3300:111 or equivalent. Introduction to the copywriter’s role in print, broadcast, and Web advertising. Study of advertising language; practice in writing advertisements and producing collateral copywriting materials.

2020:226 Electronic Reference Resources in the Computer Age (3 Credits)
Prerequisite: 2020:121 or 3300:111. Designed for individuals to broaden their scope and understanding of various electronic research techniques. Study, evaluation, and use of current and emerging technologies will be examined.
2020:227 Writing for the World Wide Web (3 Credits)  
Prerequisite: 2020:121 or 3300:111 or equivalent, and familiarity with Internet (or attend Computer Center training seminar) knowledge of word processing software. Introductory course examines spoken and written contexts merging into one 'writing space'; provides writing theory and practice for effective e-mail, newsgroup, chat, and web site writing.

2020:290 Special Topics: Associate Studies (1-4 Credits)  
(May be repeated with a change in topic) Prerequisite: permission. Selected topics on subject areas of interest in associate studies.

2020:325 Signs of Professional Writing (1 Credit)  
Prerequisite: 2020:121 or 3300:111 or equivalent. Practical examination of concrete and abstract indicators that lead readers to judge the professional quality of a written text beyond its meaning and correctness.

**Math- Applied General and Technical Studies (2030)**

2030:130 Mathematics for Allied Health (3 Credits)  
Prerequisite: placement test, 2010:52, 2010:54, 2010:57, or 2010:84 with a grade of C or better. The real number system, systems of measurement, conversions, linear equations, factoring, quadratic equations, graphing, linear systems, organizing data, averages, standard deviation, the normal distribution.

2030:151 Technical Mathematics I (2 Credits)  

2030:152 Technical Mathematics II (2 Credits)  
Prerequisite: 2030:151 with a grade of C- or better or placement test. Variation, equations of lines, Cramer’s rule, right triangle trigonometry, oblique triangles, radian measure, and complex numbers.

**Gen Ed:** Tier 1 - Quantitative Reasoning

2030:153 Technical Mathematics III (2 Credits)  
Prerequisite: 2030:152 with a grade of C- or better or placement test. Factoring, algebraic fractions, exponents and radicals, equations with radicals, equations in quadratic form, functions, their properties and graphs, exponential and logarithmic functions.

**Gen Ed:** Tier 1 - Quantitative Reasoning

2030:154 Technical Mathematics IV (3 Credits)  
Prerequisite: 2030:153 with a grade of C- or better or placement test. Functions and their graphs, polynomial functions, polynomial equations, graphs of trigonometric functions, trigonometric identities and equations, analytic geometry, complex numbers in polar form.

**Gen Ed:** Tier 1 - Quantitative Reasoning

2030:161 Mathematics for Modern Technology (4 Credits)  
Prerequisite: Placement test or completion of 2010:052, 2010:054, 2010:057, or 2010:084 with a grade of C or better. Lines, linear regression, sets, counting, basic probability, basic statistics, binomial and normal distributions, mathematics of finance, symbolic logic, arguments, logic circuits.

**Gen Ed:** Tier 1 - Quantitative Reasoning

2030:216 Applied Finite Mathematics (3 Credits)  
Prerequisite: 2030:153 with a grade of C- or better, or placement test. Number systems, integer rings, finite fields, number theory algorithms, prime numbers and primality tests, factoring, and random number.

2030:255 Technical Calculus I (3 Credits)  
Prerequisite: 2030:154 with a grade of C- or better or placement test. The derivative, applications of the derivative, derivatives of the trigonometric, logarithmic and exponential functions. Integration by antidifferentiation.

**Gen Ed:** Tier 1 - Quantitative Reasoning; Tier 3 - Critical Thinking

2030:260 Advanced Trigonometry (2 Credits)  
Prerequisite: 2030:153 or equivalent with a grade of C- or better, or placement test. Horizontal circular curves, vertical curves, and spherical triangles.

2030:290 Special Topics: Associate Studies Mathematics (1-4 Credits)  
(May be repeated with a change in topic) Prerequisite: Permission. Selected topics on subject areas of interest in associate studies.

2030:345 Technical Data Analysis (2 Credits)  
Prerequisite: [2030:154 or 2030:216] with a grade of C- or better. Data summarization including graphic representation, numerical measures, introduction to probability, confidence intervals and hypothesis testing.

2030:356 Technical Calculus II (3 Credits)  
Prerequisite: 2030:255 or equivalent with a grade of C- or better, or placement test. Methods and applications of integration, first and second order differential equations and applications, series expansion, Laplace transform, partial derivatives, and double integrals.

**Gen Ed:** Tier 1 - Quantitative Reasoning

2030:361 Applied Cryptography (3 Credits)  
Prerequisite: A grade of C or better in 2030:216. Symmetric cryptography, modular arithmetic, stream and block ciphers, random numbers, Advanced Encryption Standard, public-key cryptography, key exchange, digital signatures, hash functions, message authentication.

2030:461 Applied Cryptanalysis (3 Credits)  
Prerequisite: 2030:361 with a grade of C or better. Cryptanalysis concepts; cryptanalysis of symmetric and public key cryptosystems, key exchange systems, and digital signatures; hash function collision resistance; cryptanalysis with quantum computer.

2030:480 Advanced Topics in Technical Mathematics (2 Credits)  
Prerequisite: 2030:255 or equivalent with a grade of C- or better, or placement test. Matrices, introduction to series, partial derivatives, least squares adjustments, topics in astronomy, and coordinate systems.

**Social Sciences - Applied General and Technical Studies (2040)**

2040:230 Technical Career Search Skills (1 Credit)  
Students will develop specific skills in resume writing, interviewing, self-directed job search, networking, researching employers, as well as learning the fundamentals of the job market.

2040:240 Human Relations (3 Credits)  
Examination of principles and methods which aid in understanding the individual's response to society and the relationship between society and individuals.

**Gen Ed:** Tier 2 - Social Science; Tier 3 - Critical Thinking

2040:241 Technology & Human Values (3 Credits)  
Examines impact of scientific and technical change upon individuals and society and associated values. Topics include digital and work life, biomedical technologies and the environment.

**Gen Ed:** Tier 3 - Complex Systems
2040:242 American Urban Society (3 Credits)
Multidisciplinary treatment of urban processes and problems. Concerns
historical, political, social, economic and other environmental forces
which impact the individual in an urban setting.
Gen Ed: Tier 2 - Social Science

2040:243 Contemporary Global Issues (3 Credits)
Multidisciplinary approach to global social problems. Examines cultural,
political, and economic issues in developed and developing nations.
Emphasizes technology's impact and global interrelationships.
Gen Ed: Tier 2 - Social Science; Tier 3 - Global Diversity

2040:244 Death & Dying (3 Credits)
Examination of a wide range of topics related to death and dying.
Emphasis is placed on understanding and coping with death and dying.
Gen Ed: Tier 2 - Social Science; Tier 3 - Domestic Diversity

2040:247 Survey of Basic Economics (3 Credits)
Introduction to economic analysis and issues designed for the student
taking only one course in economics. Coverage includes economic
systems, exchange, money and banking, national income, employment,
fiscal policy and current domestic economic problems.
Gen Ed: Tier 2 - Social Science; Tier 3 - Critical Thinking

2040:251 Human Behavior at Work (3 Credits)
Examination of relationship between human behavior and the work
organization. Emphasis on how contemporary organizations are
changing and what makes individuals within their organizations more
effective.

2040:252 The Black Experience 1619-1918 (3 Credits)
Prerequisite: 2020:121 or 3300:112. This course explores ideas, people
and events which will allow the class to re-think their individual and
collective beliefs regarding Africa, Africans, and African-Americans
as well as Black people throughout the Diaspora. More specifically,
the period of 1619 to 1918 examines the origins of African-Americans
beginning with their unwilling departure from West Africa, slavery,
abolition, the Civil War, emancipation, reconstruction, historical
achievements and striving to achieve first class citizenship in America.
Gen Ed: Tier 2 - Social Science; Tier 3 - Domestic Diversity

2040:253 The Black Experience 1918-Present (3 Credits)
Prerequisite: 2020:121 or 3300:112. This course explores ideas, people
and events which will allow students to re-think their individual and
collective beliefs about Africa, Africans and African-Americans as well
as Black people throughout the Diaspora. More specifically, the period
of 1918 to Present examines the experiences of African-Americans
following the Reconstruction. Topics include, but are not limited to,
separate but equal doctrine, the civil rights movement, Black nationalism,
segregation, desegregation and integration as strategies to ameliorate
discrimination and achieve equal opportunity.
Gen Ed: Tier 2 - Social Science; Tier 3 - Domestic Diversity

2040:254 The Black Experience from 1619-1877 (2 Credits)
Prerequisite: 2020:121 or 3300:112. Examination of the black American
including origins, historical achievements and striving to achieve first-
class citizenship in America from 1619 to 1877.
Gen Ed: Tier 2 - Social Science; Tier 3 - Domestic Diversity

2040:256 Diversity in American Society (3 Credits)
Prerequisite: 2020:121 or 3300:112. Survey course covering demographic,
social, economic, political, and educational realities of diversity in 21st
Century. Focus on diversity and unity, historical overview.
Gen Ed: Tier 2 - Social Science; Tier 3 - Domestic Diversity