

USAFI INFORMATION BULLETIN

This Bulletin supplements and brings up to date USAFI Catalog, Second Edition, March, 1944. Distribution of the Second Edition Catalog has been completed. Information in this Bulletin on course offerings and text materials available for distribution is complete as of 1 July 1945. Additional Bulletins will be issued quarterly.

Information herein applies only to services from Headquarters, USAFI, Madison 3, Wisconsin. Personnel overseas stationed near a USAFI Branch should write that Branch for information concerning services and courses.

Be sure you have the latest Bulletin.



***Headquarters
United States Armed Forces Institute
Madison 3, Wisconsin***

Contents

Throughout this Bulletin will be found references to comparable Sections in the USAFI Catalog, Second Edition. No revised information is included in this Bulletin concerning Section VI, How to Study Correspondence and Self-Teaching Courses, and Second VII, How to Organize Off-Duty Classes or Group Study, USAFI Catalog, Second Edition.

SECTION I	Page
USAFI and Branches.....	4
SECTION II	
Eligibility for Enrollment.....	5
SECTION III	
USAFI Correspondence Courses.....	6
High School Courses.....	7
Technical Courses.....	10
College Courses.....	16
SECTION IV	
College and University Correspondence Courses.....	21
SECTION V	
Education Manuals.....	25
Self-Teaching Texts.....	26
Reprints of Standard Texts.....	30
Language Materials.....	38
GI Roundtable Manuals.....	39
SECTION VI	
High School and College Credit.....	40

Note.—The supply of USAFI Catalogs at Madison, Wisconsin, is exhausted. If copies are needed for reference they must be obtained locally.

USAFI and Branches *

The United States Armed Forces Institute is an official Army and Navy school. Headquarters are at Madison 3, Wisconsin. Oversea branches of the United States Armed Forces Institute have been established as follows:

<p>Africa-Middle East Branch, USAFI APO 787, c/o Postmaster New York, New York</p> <p>Alaskan Branch, USAFI University of Washington Seattle 5, Washington</p> <p>Antilles Department Branch, USAFI APO 851, c/o Postmaster Miami, Florida</p> <p>Central Pacific Branch, USAFI APO 958, c/o Postmaster San Francisco, California</p> <p>European Branch, USAFI APO 413, c/o Postmaster New York, New York</p>	<p>India-Burma Branch, USAFI APO 885, c/o Postmaster New York, New York</p> <p>Mediterranean Branch, USAFI APO 512, c/o Postmaster New York, New York</p> <p>Panama Canal Department Branch, USAFI APO 834, c/o Postmaster New Orleans, Louisiana</p> <p>South Pacific Branch, USAFI APO 502, c/o Postmaster San Francisco, California</p> <p>Southwest Pacific Area Branch, USAFI. APO 501, c/o Postmaster San Francisco, California</p>
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Students in these areas will obtain better service by enrolling with the nearest Branch.

*Replaces page 3, USAFI Catalog, Second Edition.

*Eligibility for Enrollment**

Members of the Armed Forces on active duty who are not engaged in basic training are eligible. Enlisted personnel must secure the approval of their immediate commanding officer. Civilians, veterans, members of the Maritime Service, Merchant Marine, Coast Guard Auxiliaries and Civil Air Patrol are not eligible. Personnel of the Marine Corps are eligible for college and university correspondence extension courses offered through USAFI, and for certain USAFI correspondence courses. Marines desiring correspondence instruction should apply to the Special Services Officer for specific information.

*Replaces page 4, paragraph 1, USAFI Catalog, Second Edition.

USAFI Correspondence Courses

A. Enrollment Procedure ¹

Study the list of courses. Choose the course you desire.

Since the course may be out of stock when the application is received, it is suggested that you indicate a second choice to avoid delay. Be sure you have had the proper preparation for the courses you choose. Obtain a USAFI application blank (WD AGO Form 0824) from the Information-Education Officer, Educational Services Officer or Marine Corps Special Services Officer; fill it out completely; secure the approval of your organization commander; and send the application blank (and the remittance, if you are not already enrolled) to the Commandant, United States Armed Forces Institute, Madison 3, Wisconsin. Remittance must be by money order, cashier's check, or certified check, and payable to the Treasurer of the United States, Madison 3, Wisconsin. *Do not send cash or personal checks.*

Service personnel stationed within continental limits of the United States may ordinarily enroll for only one course at a time. Personnel assigned to sea duty or who are overseas may enroll for two courses simultaneously. Upon successful completion of approximately one-half the lessons of one course, service personnel may apply for an additional course without payment of an additional \$2.00 fee.

B. Fees ²

For USAFI correspondence courses, enlisted personnel of the Army and enlisted and officer personnel of the Navy, Marine Corps, and Coast Guard must submit a \$2.00 fee with the first application. The applicant then becomes eligible, without charge, for additional USAFI courses, provided an acceptable standard of work is maintained. Commissioned officers of the Army, flight and warrant officers of the Army must pay the full cost for each USAFI correspondence course. The exact cost may be ascertained by writing to the Commandant, United States Armed Forces Institute, Madison 3, Wisconsin. Remittance for the total amount must be submitted with the application.

C. List of Institute Correspondence Courses ³

In the Second Edition Catalog certain Self-Teaching Courses were listed in this section. These courses are still listed here, but for a complete listing of Self-Teaching Courses (new ones have been added) see Section V. Where course numbers have been discontinued and the same courses are now available as EMs that fact is indicated.

High school level courses are numbered from 50 to 199. For example, the course designated H 55, "Bookkeeping I," is a high school level course.

Industrial and technical courses are numbered from 200 to 499. For example, Course J 200, "Aerodynamics," is a technical course.

College or university level courses are numbered from 500 to 999. For example, Course C 500, "Introduction to Accounting—Course I," is a college or university level course.

¹ Supplements pages 9-15, USAFI Catalog, Second Edition.

² Supplements pages 7-8, USAFI Catalog, Second Edition.

³ Replaces pages 39-68, USAFI Catalog, Second Edition.

HIGH SCHOOL COURSES

BUSINESS

H 50. Bookkeeping and Accounting I
(Self-teaching). Enroll for EM 700 (sec. V). For Correspondence Course, see H 55.

H 51. Bookkeeping and Accounting II
(Self-teaching). Enroll for EM 702 (sec. V). For Correspondence Course, see H 56.

H 52. Bookkeeping and Accounting III
(Self-teaching). Enroll for EM 705 (sec. V). For Correspondence Course, see H 57.

H 53. Bookkeeping and Accounting IV
(Self-teaching). Enroll for EM 708 (sec. V). For Correspondence Course, see H 58.

H 54. Bookkeeping and Accounting V
(Self-teaching). Enroll for EM 711 (sec. V). For Correspondence Course, see H 60.

H 55. Bookkeeping I
Fundamental principles of bookkeeping and accounting involved in handling personal affairs, making and interpreting records of business transactions. 9 lessons.

H 56. Bookkeeping and Accounting II
Merchandise bought and sold on account, cash receipts and payments, work sheet, financial reports, adjusting and closing of entries. 8 lessons. Prerequisite: H 50 (EM 700) or H 55 or equivalent.

H 57. Bookkeeping and Accounting III
Advanced principles of bookkeeping and accounting illustrated through a retail store system. 9 lessons. Prerequisite: H 51 (EM 702) or H 56 or equivalent.

H 58. Bookkeeping and Accounting IV
Principles of bookkeeping and accounting in a partnership business. 9 lessons. Prerequisite: H 52 (EM 705) or H 57 or equivalent.

H 59. Business Arithmetic
Intensive drill in the arithmetic of daily business transactions. 20 lessons. Prerequisite: H 148 or equivalent.

H 60. Bookkeeping and Accounting V
Principles of bookkeeping and accounting applied to corporations and manufacturing. 9 lessons. Prerequisite: H 55 (EM 708) or H 58 or equivalent.

H 61. Economics

Consumption, production, exchange, distribution, public finance. 25 lessons.

H 62. Economic Geography
(Self-teaching). Enroll for EM 230 (sec. V).

H 63. Business Law

Contracts, sales, insurance, negotiable instruments agency; partnerships, corporations, types of property. 16 lessons.

ENGLISH

***E 1. Improving Your Reading, Part I**
(Self-teaching). Enroll for EM 155 (sec. V).

***E 2. Improving Your Reading, Part II**
(Self-teaching). Enroll for EM 156 (sec. V).

***E 3. Improving Your Reading, Part III**
(Self-teaching). Enroll for EM 157 (sec. V).

***E 4. Improving Your Reading, Part IV**
(Self-teaching). Enroll for EM 158 (sec. V).

H 83. English Grammar
(Self-teaching). Enroll for EM 100 (sec. V). For correspondence courses, see H 87, H 88.

H 84. The Mechanics of English
(Self-teaching). Enroll for EM 101 (sec. V). For correspondence courses, see H 89, H 90.

H 85. Building Good Sentences
(Self-teaching). Enroll for EM 102 (sec. V). For correspondence courses, see H 90.

H 87. Ninth-Grade English—Course I
Grammar and composition with drill in word forms and punctuation, and reading of "Treasure Island" for appreciation. 18 lessons. Prerequisite: 8th grade English or equivalent.

H 88. Ninth-Grade English—Course II
Paragraph development; elementary work in narration and description; reading of "Ivanhoe" and "Julius Caesar" for appreciation. 19 lessons. Prerequisite: H 87 or equivalent.

H 89. Tenth-Grade English—Course I
Composition and literature with review of fundamentals of grammar. "Silas Marner" and "The Merchant of Venice." 20 lessons. Prerequisite: H 88 or equivalent.

*Elementary school level subjects.

H 90. Tenth-Grade English—Course II

Fundamentals of grammar, punctuation, sentence and paragraph structure. "The House of the Seven Gables" and "The Pocket Book of Verse" for appreciation. 16 lessons. Prerequisite: H 89 or equivalent.

Note. A knowledge of the fundamentals of English grammar is desirable preparation for the following English courses:

H 91. Writings of English Authors—Course I

A study of English literature from the period of the Anglo-Saxons through Wordsworth's time. 15 lessons.

H 92. Writings of English Authors—Course II

Study of the works of Coleridge, Scott, Byron, Shelley, Dickens, Tennyson, Kipling, Conrad, and other Victorian and modern authors. 15 lessons.

H 93. Writings of American Authors—Course I

A survey of American literature. Reading of "The Last of the Mohicans." 16 lessons.

H 94. Writings of American Authors—Course II

A continued survey of American literature, including works of the period following the Civil War. 20th Century writings. 14 lessons.

H 95. Practical English Usage—Course I

Drill in mechanics of writing and practice in organizing ideas and putting them on paper. 25 lessons.

H 96. Practical English Usage—Course II

Continued drill in mechanics of writing; practice in organizing ideas and expressing them in writing. 25 lessons.

HISTORY AND CIVICS

H 110. American History—Course I

H 112. American History—Course II

Replaced by H 117.

H 113. Civics

The organization of the American Government, and the powers and duties of its branches. 24 lessons.

H 114. World History—Course I

From primitive man to the 18th Century. Civilizations of the near East, Egypt, Greece, Roman history; Medieval Europe, the great discoveries; American Revolution; the 18th Century. 23 lessons.

H 115. World History—Course II

From mid-18th Century to World War II; rise and development of national states;

international conflicts; economic development; colonial expansion; liberalism; World Wars I and II. 24 lessons. Prerequisite: H 114 or equivalent.

H 116. Ancient History

Discontinued.

H 117. American History

The political, social, and economic aspects of the development of the United States from the Old World background to the middle 1930's. 16 lessons.

MATHEMATICS

H 133. Review Arithmetic I

(Self-teaching.) Enroll for EM 300 and EM 301 (sec. V). For correspondence course, see H 148.

H 134. Review Arithmetic II

(Self-teaching.) Enroll for EM 302 and EM 303 (sec. V). For correspondence course, see H 148.

H 135. Basic Mathematics

Replaced by H 175 and H 176.

H 136. Algebra, Course I

(Self-teaching.) Enroll for EM 304 (sec. V). For correspondence course, see H 149.

H 137. Algebra, Course II

(Self-teaching.) Enroll for EM 305 (sec. V). For correspondence course, see H 149.

H 138. Beginning Algebra

H 139. Intermediate Algebra

Replaced by H 149.

H 140. Advanced Algebra

Discontinued.

H 141. Plane Geometry—Course I

(Self-teaching.) Enroll for EM 306 (sec. V). For correspondence course, see H 143.

H 142. Plane Geometry—Course II

(Self-teaching.) Enroll for EM 307 (sec. V). For correspondence course, see H 144.

H 143. Plane Geometry—Course I

Rectilinear figures, parallel lines, polygons, inequalities, methods of proof, circles. 20 lessons. Prerequisite: H 149 or equivalent.

H 144. Plane Geometry—Course II

Measurement of angles and arcs; locus; ratio and proportion; areas of polygons; regular polygons; and trigonometric ratios. 20 lessons. Prerequisite: H 143 or equivalent.

H 145. Solid Geometry

Theorems and proofs of three-dimensional figures; prisms; pyramids, cylinders, cones, and spheres. 20 lessons. Prerequisite: H 144 or equivalent.

H 146. Plane Trigonometry

(Self-teaching.) Enroll for EM 311 (sec. V). For correspondence course, see H 147.

H 147. Trigonometry

Trigonometric functions and use of tables; solution of right and oblique triangles; radian measure; fundamental identities; logarithms; graphical representations; and inverse trigonometric functions. 20 lessons. Prerequisite: H 144 or equivalent.

H 148. Review Arithmetic

A review of the fundamentals of arithmetic covering such topics as addition, subtraction, multiplication, division, fractions, decimals, percentage, square root, and graphs. 10 lessons.

H 149. Beginning Algebra

(Replaces H 138, and H 139.) Formulas, equations, and graphs; algebraic fractions; special products and factors; powers, roots, and radicals; ratio, variation, and proportion. 10 lessons. Prerequisite: H 148 or equivalent.

H 175. Basic Mathematics I

Arithmetic and geometry: fractions, decimals, and percentage; measurement of lengths and angles, circles and triangles, maps and charts, areas and volumes, constructions. 12 lessons.

H 176. Basic Mathematics II

Algebra and trigonometry: graphs, formulas, signed numbers, and equations; trigonometric ratios, logarithms, and the slide rule. 11 lessons. Prerequisite: H 175 or equivalent.

SCIENCE

H 151. General Science

Weather and climate, water, the earth's crust, heat, light, color, electricity, plant and animal life, health. 9 lessons. Prerequisite: H 148 or equivalent.

H 152. Inorganic Chemistry

A nonlaboratory study of chemical definitions, laws, terminology, matter, elements, and their combinations; chemical equations and calculations. 12 lessons. Prerequisites: None. H 149 or equivalent desirable.

H 153. Physics I—Mechanics

(Self-teaching.) Enroll for EM 400 (sec. V). For correspondence course, see H 156.

H 154. Physics II—Heat, Sound, Light

(Self-teaching.) Enroll for EM 402 (sec. V). For correspondence course, see H 156.

H 155. Physics III—Electricity

(Self-teaching.) Enroll for EM 404 (sec. V). For correspondence course, see H 156.

H 156. Physics

A nonlaboratory study of fundamental principles involved in mechanics, heat, electricity, sound, and light. 11 lessons. Prerequisite: H 149 or equivalent; H 144 or equivalent desirable.

H 157. Physiography

Discontinued.

SECRETARIAL

H 66. Fundamentals of Typewriting

(Self-teaching.) Enroll for EM 725 (sec. V).

H 67. Business Typewriting

(Self-teaching.) Enroll for EM 726 (sec. V). For correspondence course, see 611.

H 68. Army Typewriting

(Self-teaching.) Enroll for EM 904 (sec. V).

H 71. Elementary Gregg Shorthand

Gregg's practical system of shorthand writing designed for all forms of stenographic work. 14 lessons.

H 72. Advanced Gregg Shorthand

Advanced exercises for the development of efficiency and technical skill in the writing of shorthand. 12 lessons. Prerequisite: H 71 or equivalent.

H 73. Shorthand

(Self-teaching.) Enroll for EM 720 (sec. V). For correspondence course, see H 71.

H 74. Advanced Shorthand

(Self-teaching.) Enroll for EM 722 (sec. V). For correspondence course, see H 72.

H 75. Business Correspondence

Writing of various types of business letters, sentence structure, use of vocabulary. 17 lessons. Prerequisite: A knowledge of English grammar.

611. Typewriting

Basic typewriting techniques; development of speed; common business forms and letters. 15 lessons. Prerequisite: None. Typewriter essential.

TECHNICAL COURSES

AGRICULTURE

J 334. Farm Forestry

Establishment, care, and importance of farm forests or wood lots. 9 lessons.

ARMY CLERICAL

J 226. Military Correspondence

(Self-teaching.) Enroll for EM 900 (sec. V).

J 227. Military Orders

(Self-teaching.) Enroll for EM 901 (sec. V).

J 228. Basic Military Records—Course I

(Self-teaching.) Enroll for EM 902 (sec. V).

J 229. Basic Military Records—Course II

(Self-teaching.) Enroll for EM 903 (sec. V).

AVIATION AND AUTOMOTIVE

J 200. Aerodynamics

Forces acting on airplanes; calculations; maneuvers; airplane characteristics and performance. 15 lessons. Prerequisite: H 144 or equivalent.

J 201. Aeronautical Meteorology

Atmospheric conditions; clouds and winds; meteorological charts and reports; weather prediction. 15 lessons. Prerequisite: H 144 or equivalent.

J 202. Aeronautical Navigation

Aeronautical charts; interception; wind drift; radius of action; radio navigation; instrument flying. 15 lessons. Prerequisite: H 144 or equivalent.

J 203. Aviation Engines

Types, construction, parts, operation, and maintenance of aviation engines; cooling, wiring, lubricating, fuel and ignition systems. 11 lessons. Prerequisite: H 148 or equivalent; H 149 desirable.

J 204. Airplane Maintenance—Part I

Airplane parts, instruments, assembly and rigging, handling and maintenance; aeronautical engineering. 7 lessons. Prerequisite: H 148 or equivalent; H 149 desirable.

J 205. Airplane Maintenance—Part II

Aircraft woodwork and metalwork; covering and doping materials; tools; protection of airplane parts. 7 lessons.

J 211. Auto Mechanics I—The Engine

(Self-teaching.) Enroll for EM 950 (sec. V). For correspondence courses, see J 216, J 217, J 218.

J 212. Auto Mechanics II—Cooling, Lubrication, and Fuel Systems

(Self-teaching.) Enroll for EM 951 (sec. V). For correspondence courses, see J 216, J 217, J 218.

J 213. Auto Mechanics III—Automotive Electricity

(Self-teaching.) Enroll for EM 952 (sec. V). For correspondence courses, see J 216, J 217, J 218.

J 214. Auto Mechanics IV—The Power Flow

(Self-teaching.) Enroll for EM 953 (sec. V). For correspondence courses, see J 216, J 217, J 218.

J 215. Auto Mechanics V—Chassis Units

(Self-teaching.) Enroll for EM 954 (sec. V). For correspondence courses see J 216, J 217, J 218.

J 216. Automotive Power Plants

Construction, maintenance, and repair of power plant mechanism. Specific variations of each part in different makes of cars. 14 lessons. Prerequisites: None. H 156 or equivalent desirable.

J 217. Automobile Chassis and Running Gear

Axles; steering gear; universal joints; brakes; lubrication; tire, fender, and body repairing. 9 lessons.

J 218. Automobile Electrical Equipment

Ignition systems; storage batteries; starting motor; voltage and current regulators; generators; electric equipment; engine tune-up. 15 lessons.

BUILDING CONSTRUCTION

J 231. Air Conditioning

Laws and properties of air, water, and steam; physiological principles of air conditioning; heat transmission, infiltrations; heating and cooling loads; humidification; air duct design. 16 lessons. Prerequisite: H 149 or equivalent; C 713 desirable.

J 232. Basic Construction Work

Reading structural steel and concrete blueprints; materials of structural engineering; cements and aggregates; concrete; mortar; steel reinforcing. 11 lessons. Prerequisites: H 148 or equivalent; H 149 and H 144 desirable.

J 233. Details of Concrete Structures

Foundations; piling; reinforced concrete buildings; retaining walls and dams; tanks and bins; bridges and culverts; conduits and chimneys; streets and highways; waterproofing of concrete. 9 lessons. Prerequisite: H 148 or equivalent.

J 234. Methods of Concrete Construction and Estimating

Forms and centering; field work in concrete construction; surveying for building construction; estimating concrete work; agreements and specification. 9 lessons. Prerequisite: H 148 or equivalent.

J 235. Heating and Ventilation

Principles equipment, and design of warm air, steam, and hot-water heating systems; central station and district heating; systems of ventilation; industrial air conditioning. 30 lessons. Prerequisite: H 149 or equivalent; H 144 desirable.

J 236. Masonry Construction

Varieties and qualities of building stone; stone masonry; terra cotta; face, ornamental and common brickwork; plastering; floor and wall coverings. 8 lessons.

J 237. Metal Construction

Sheet metal work; ornamental metal work; builder's hardware; erection of steel building frames; fireproofing. 5 lessons.

J 238. Operations Preliminary to Building

Surveying for building construction; excavating, shoring, and piling; foundations; limes; cements, mortars; concrete construction. 5 lessons. Prerequisite: H 148 or equivalent; H 149 desirable.

J 239. Plumbing and Gas Fitting—Part I

Plumbing methods, tools, materials, and fixtures, and their uses in the installation of modern plumbing equipment. 12 lessons. Prerequisite: H 148 or equivalent.

J 240. Plumbing and Gas Fitting—Part II

Tanks and pumps; domestic and institutional water supplies, plumbing inspection, design, plans, and specifications; gas production, distribution, and domestic uses. 11 lessons. Prerequisite: J 239; H 149 desirable.

J 241. Specifications, Estimating, and Contracts

Blueprint reading; specification writing; building superintendence; estimating of building costs; building contracts. 13 lessons. Prerequisite: H 148 or equivalent.

J 242. Structural Engineering—Part I

Design and construction of reinforced concrete buildings. 16 lessons. Prerequisites: Mathematics through Calculus, J 384, J 386, and a preliminary course in Reinforced Concrete Design or their equivalents.

J 243. Structural Engineering—Part II

Design and construction of reinforced concrete arch bridges, slab and girder bridges, and culverts. 24 lessons. Prerequisites: Mathematics through Calculus, J 384, J 386, and a preliminary course in Reinforced Concrete Design or their equivalents. J 242 not necessary.

J 244. Structural Engineering—Part III

Methods used in computing stresses in bridge trusses subjected to uniform loadings. 32 lessons. Prerequisites: Mathematics through Calculus, and J 384 or equivalent. J 242 and J 243 not necessary.

J 246. Wood Construction

Grades of timber and lumber; frame construction; thermal and sound insulation; roofs and roofing; dormers; forms for concrete; interior and exterior finish; millwork; stairs; the steel square. 13 lessons. Prerequisite: H 148 or equivalent.

DRAFTING AND APPLIED ART

NOTE. No equipment is supplied by USAFI for any drafting or applied art course.

7X1. Mechanical Drawing

Pencil drawings and tracings, geometrical drawings, machine sketching, projection drawing. 18 lessons. Prerequisite: H 144.

J 261. Freehand Drawing

Line and model drawing in pencil and charcoal; light and shade; figure drawing; the figure in action. 11 lessons.

J 264. Electrical Drawing

Principles of electrical drafting and their applications in the electric power-plant field. 10 lessons. Prerequisites: None; J 313 and 7X1 desirable.

J 265. Mapping

Planning maps; scales; topographic symbols; plotting traverses; contour maps; city and village maps. 8 lessons. Prerequisites: H 147 and 7X1 or equivalents.

J 266. Surfaces

Development of patterns of surfaces of various kinds of objects by parallel lines, on radial lines, and by triangulation. 7 lessons. Prerequisites: None. 7X1 desirable.

J 267. Airplane Drawing

General practices in airplane drafting; the drawing of the various parts of the airplane. 14 lessons. Prerequisites: None. J 266 desirable.

J 268. Elementary Architectural Drawing

Description of materials and methods of procedure used in making drawings; practice in drawing of three-dimensional objects in various positions and from several angles; representation of a building. 9 lessons. Prerequisites: None. H 144 desirable.

J 269. Freehand and Ornamental Drawing

Drawing materials and methods; the drawing of lines, geometric ornaments, enriched moldings, scrolls, and conventional foliage. 5 lessons. Prerequisites: None. J 268 desirable.

J 275. Ship Drawing

Shipbuilding terms and definitions; types and principal dimensions of ships; drawing various parts of a ship considering both riveted and welded constructions. 13 lessons.

J 276. Practical Projection

Projections of points, lines, planes, solids bounded by planes, cylindrical sections, conic sections, and sections of solids in general. 7 lessons. Prerequisites: None; fundamentals of drafting desirable.

J 277. Sheet Metal Drafting

Methods of laying out patterns for sheet metal work in industry. 16 lessons. Prerequisites: None. J 266 and J 276 or equivalents desirable.

J 279. Art Techniques—Part I

Elements and principles of design; lettering; decorative lettering; elements of color, color harmonies, and appreciation; abstract and conventionalized design; applied design. 18 lessons.

J 280. Art Techniques—Part II

A continuation of J 279; applications of the principles of color and design. 17 lessons. Prerequisite: J 279.

J 281. Art Techniques—Part III

Discontinued.

J 282. Perspective and Composition

Parallel, angular, and pictorial perspective; pictorial composition. 10 lessons.

J 283. Drawing for Reproduction

Drawing for line engraving and for color reproduction. 8 lessons. Prerequisites: None. J 279 desirable.

J 284. Commercial Art

Decorative lettering; cover designing; newspaper illustrating; caricaturing and cartooning; magazine and book illustrating. 16 lessons. Prerequisites: None. J 279 desirable.

J 286. Pen and Brush Lettering

Discontinued.

J 287. Designing Show Cards

Planning; and designing show cards; color applied to show cards; methods of getting work, scale of prices, and special studio or shop equipment. 6 lessons. Prerequisite: A course in lettering.

ELECTRICITY, ELECTRONICS, AND RADIO

J 312. Electrical Measuring Instruments

Electrostatics and magnetism; measurement of electricity, resistance, and temperature; a-c and d-c electrical measurement; watt-hour meters and instrument transformers. 8 lessons. Prerequisite: H 149 or equivalent; H 156 desirable.

J 313. Elementary Electricity

Electric circuits and currents; resistance; cells and batteries; magnetism and electromagnetism; generators, motors, and meters. 10 lessons.

J 314. Applied Electricity

Practical electric wiring; construction, maintenance, and repair of d-c armatures, fractional-horsepower motors, a-c motors, and induction motors; storage batteries; electric heating and electric furnaces. 17 lessons. Prerequisite: H 148 or equivalent.

J 315. Principles and Applications of Electric Illumination

The science and art of illumination; materials and apparatus; specifications and requirements of indoor and outdoor lighting; floodlighting; electric signs. 9 lessons.

J 316. Radio for Beginners

(Self-teaching). Enroll for EM 415 (sec. V).

J 317. Radio Code

Enroll for EM 406 (sec. V).

J 318. Radio Communication—Part I

Principles of radio communication, d-c and a-c circuits, resonance, electrical and sound waves, receivers, loudspeakers; vacuum tubes, amplifiers, oscillators. 15 lessons. Prerequisite: H 149 or equivalent; H 147 and H 156 desirable.

J 319. Radio Communication—Part II

Modulation, detectors, and rectifiers; amplifiers, public address systems; broadcast radio receivers. 15 lessons. Prerequisite: J 318 or equivalent experience.

J 320. Theory and Construction of Electrical Machines

Direct-current machines; alternating-current circuits and motors, alternators, transformers; synchronous converters alternating-current rectifiers; industrial motor applications. 12 lessons. Prerequisites: None. H 147 desirable.

J 321. Electrical Engineering—Part I

Theory of design and operation of direct-current machinery. 15 lessons. Prerequisite: C 718 or equivalent.

J 322. Electrical Engineering—Part II

Application of electrical theory to the construction and operation of d-c motors. 15 lessons. Prerequisite: J 321 or similar background.

J 323. Electrical Engineering—Alternating-Current Machinery

Alternating currents; principles of design, construction, and operation of the transformer and of the various types of a-c machines. 24 lessons. Prerequisite: Mathematics through Calculus.

MARINE ENGINEERING

J 346. Marine Engineering—Preparatory

Strength of materials; heat; steam; marine-engine mechanisms; principles of steam turbine; fuels and combustion; elements of oil burning; oil burning under marine boilers; pulverized coal burning. 9 lessons. Prerequisite: H 148 or equivalent; H 149, H 144, and H 156 desirable.

J 496. Coast Guard Law Enforcement

Sources of law and enforcement of criminal, custom, and navigation laws. Of particular interest to yachtsmen and operators of civilian commercial vessels. 12 lessons.

J 497. Marine Navigation—Course I

All phases of modern piloting and dead reckoning; of special interest to yachtsmen and to those requiring knowledge of the theory and practice of marine piloting. 13 lessons. Prerequisite: H 147 or equivalent.

J 498. Marine Navigation—Course II

A continuation of J 497 covering the essentials of modern nautical astronomy. 7 lessons. Prerequisite: J 497.

J 499. Marine Navigation—Course III

A continuation of J 498, consisting of a study of relative movement and nautical problems involving use of the maneuvering board. 27 problems. Prerequisite: J 498.

MECHANICS AND ENGINEERING

J 381. Elements of Mechanics

Scalar and vector quantities; speed and velocity; motion; mass; force; energy; friction; gravitation; elasticity; fluids and gases. 16 lessons. Prerequisite: H 147 or equivalent.

J 382. Mechanical Principles Discontinued.

J 383. Elementary Fluid Mechanics

Pressure and equilibrium of liquids; laws of equilibrium and motion of liquids. 24 lessons. Prerequisites: J 384, J 385, and C 718 or equivalent.

J 384. Statics

Forces; composition and resolution of forces; forces in equilibrium; simple structures; center of gravity. 24 lessons. Prerequisite: C 718 or equivalent.

J 385. Dynamics

Moment of inertia; plane rectilinear and curvilinear motion; motion about a fixed axis; impulse and momentum. 27 lessons. Prerequisites: J 384 or equivalent and mathematics through Calculus.

J 386. Strength of Materials

Stresses and strains of elastic bodies in engineering structures and machines. 27 lessons. Prerequisites: Mathematics through Calculus and J 384; J 385 desirable.

J 388. Internal Combustion Engines—Introductory

Discontinued.

J 389. Principles of Diesel Engines.

A basic course covering the fundamental principles of the operation, fuel injection, and parts of Diesel engines. 14 lessons.

J 390. Diesel Engines—Theory and Design.

Fuels, combustion, and combustion chambers; testing and performance; principles of engine design; design of major engine parts. 6 lessons. Prerequisites: H 147 and J 389 or equivalent experience.

J 391. Steam Engines, Turbines, and Pumps—Part I.

Various types of steam engines, the working of their parts, governors, and engine testing. 10 lessons. Prerequisite: H 149 or equivalent.

J 392. Steam Engines, Turbines, and Pumps—Part II.

Condensers; the steam turbine, impulse and reaction types; engine and turbine installations; steam pump installation and management; reciprocating, power, and rotary pumps. 7 lessons. Prerequisite: J 391.

J 393. Refrigeration.

Construction and operation of refrigeration systems, application of cold storage, insulation of refrigerated spaces, harvesting and use of ice in cold storage. 27 lessons. Prerequisite: None. H 156 desirable.

J 394. Municipal Engineering—Water Supply.

Hydraulics, sources of water supply, irrigation, water-treatment plants, purification of water. 16 lessons. Prerequisite: H 149 or equivalent.

J 395. Municipal Engineering—Sewage Disposal.

Municipal refuse; operation of sewage-treatment plants, sewerage, sewage treatment. 11 lessons. Prerequisite: H 149 or equivalent.

J 396. Fuel, Water and Oil Systems of Diesel Engines.

Fuel oils, gasolines, and gases; air cleaners and cooling systems; oil purifying systems; engine efficiency. 12 lessons. Prerequisite: J 389 or equivalent experience.

J 399. Diesel Electric Power Plants.

Characteristics of Diesel engines, principles of Diesel driven generators, governors, voltage regulators, parallel operation of generators, installation and maintenance of electric equipment. 5 lessons. Prerequisite: J 389 or equivalent experience.

METAL WORKING

J 362. Arc Welding.

The techniques, practices, equipment, and underlying principles involved in arc welding. 8 lessons.

J 363. Gas Welding.

Gas welding equipment; welding of carbon steel, iron and alloy steels, pipe, and nonferrous metals; overlaying and gas cutting. 7 lessons.

J 364. Patternmaking.

Patternmaking equipment, operations, materials, requirements, and techniques. 13 lessons.

J 365. Foundry Practices—Part I.

Green-sand molding operations, methods and appliances; core making; machine molding, dry-sand and loam molding; foundry sands and refractories; foundry equipment and processes; foundry chemistry. 12 lessons.

J 366. Foundry Practices—Part II.

Metallurgy of iron, steel, and nonferrous metals; cupolas; mixing cast iron; steel, malleable and nonferrous casting. 12 lessons. Prerequisites: None. J 365 desirable.

J 367. Introduction to Machine Industry—Bench Work.

Expert machinist; hand tools; holding devices; measuring tools; precision tools; lathe, lathe tools, drills, drilling machines; reamers, taps, dies; lay-out. 11 lessons.

J 368. Lathe and Milling Machine Operation.

Basic operations, techniques, and projects of lathes and milling machines. 10 lessons. Prerequisite: J 367 or similar background.

J 369. Shapers, Planers, and Grinding.

Construction, operation, and uses of planers, shapers, and grinders. 9 lessons. Prerequisite: J 367 or similar background.

J 370. Milling Machines.

J 374. Shapers and Planers, Grinding, Lay-out.

(Self-teaching). For Correspondence Courses, see J 368 and J 369.

J 371. Metallurgy and Heat Treatment

Metallurgy of iron, steel, and nonferrous metals; metallography; heat treatment of iron and carbon steels, tools and dies; iron and steel castings, and nonferrous metals, 12 lessons. Prerequisites: H 149 or equivalent and elementary chemistry.

J 372. Metal Forging

Forge shop equipment; hand and machine forging; tool dressing; hardening and tempering; special forging operations and equipment. 7 lessons. Prerequisite: H 148 or equivalent.

J 373. Toolmaking

Principles, processes, materials, techniques, and tools involved in toolmaking. 14 lessons. Prerequisites: None; H 149, H 144, and experience in the machinist trade desirable.

PHOTOGRAPHY AND PLASTICS

J 412. Plastics

Discontinued. For Correspondence Course, see X 412.

X 412. *Plastics*

History, testing, and properties of plastic materials; molds; processing fabrication, and finishing of plastic articles. 13 lessons. Prerequisites: None. Chemistry desirable.

J 416. *Photography—Basic Processes*

Use of the camera, developing and printing, taking of interior and unusual photographs. No photography materials for this course are furnished by USAFI. 16 lessons. Prerequisites: None. H 156 desirable.

RAILWAYS AND TRANSPORTATION

J 421. *The Steam Locomotive*

Various types of steam locomotives, their construction and operation, headlights, break-downs, management, and train rules. 13 lessons. Prerequisites: None. H 148 desirable.

J 422. *Steam Locomotive Repair Work*

Locomotive construction, troubles, checking and dismantling of individual parts, repair, and reassembly. 10 lessons. Prerequisites: None. H 149 desirable.

J 423. *Locomotive Firing and Accessories*

Locomotive boilers; oil-burning locomotives; hand firing, stokers, and injectors; feedwater heating equipment; superheaters; headlights, lubricators, and other accessories. 12 lessons. Prerequisites: H 148 or equivalent.

J 425. *Air Brakes—Locomotives*

Arrangement, operation, and disorders of the airbrake; brake equipment; compressors; automatic train control equipment. 9 lessons.

J 427. *Railroad Car Inspection—Mechanical*

Brakes and brake equipments, and their inspection; yard inspection of trains, tank cars, U. S. safety appliances, and handling of explosives. 11 lessons. Prerequisite: H 148 or equivalent.

J 428. *Railroad Car Repair—Part I*

Repairs to draft gears, car trucks, carshop millwork, wooden box cars, stock cars, refrigerators, cabooses, and steel house cars. 9 lessons.

J 429. *Railroad Car Repair—Part II*

Repairs to passenger-train cars, freight-car roofs and doors; steel-frame flat cars, steel gondola and hopper cars. 8 lessons. Prerequisites: None. J 428 not necessary.

J 430. *Railroad Signaling*

Automatic train control; track circuits; automatic signalling; mechanical, electric, and electropneumatic interlocking equipment; car-retarder systems; centralized traffic control. 10 lessons. Prerequisite: None. H 156 desirable.

J 432. *Railway Track Maintenance*

Section foreman, track maintenance, railway organization and operation, roadmaster and his work, railway structures and terminals. 12 lessons. Prerequisite: H 148 or equivalent.

J 433. *Railroad Rates*

Reading and interpreting railroad rates, tariff regulations and rules, and freight classifications and services. 22 lessons. Prerequisite: H 148 or equivalent.

J 434. *Railway Transportation*

The economics of transportation with special reference to railroad rate-making and the regulation of rail transportation. 36 lessons. Prerequisite: High school graduate or equivalent background.

J 435. *Traffic Management*

Planning, moving, and expediting rail, water, highway, and air freight; tracing freight shipments; packing goods for shipment; control of industrial freight; railroad regulations; parcel post; railway express. 27 lessons. Prerequisite: H 148 or equivalent; training or experience as a rate clerk desirable.

COLLEGE COURSES

Note. A high school education or equivalent experience is a general prerequisite for all college level courses.

ACCOUNTING

C 500. Introduction to Accounting I

The principles of general accounting providing a foundation for advanced and specialized courses. 16 lessons.

C 501. Introduction to Accounting II

Continuation of C 500; the various forms of business organization. 16 lessons. Prerequisite: C 500 or equivalent.

C 502. Intermediate Accounting I

Advanced partnership and corporation accounting. 4 lessons. Prerequisite: C 501 or equivalent.

C 503. Intermediate Accounting II

Accounting for branches, combinations, and reorganizations. 4 lessons. Prerequisite: C 501 or equivalent.

C 504. Cost Accounting

Basic theory and technique involved in design and operation of cost accounting system. 16 lessons. Prerequisite: C 501 or equivalent.

C 506. Auditing

An introductory course in the principles and procedures of auditing bookkeeping records. 21 lessons. Prerequisite: C 503 and C 504 or equivalent.

C 507. CPA Review Problems

Foreign exchange, consignments, installment sales, liquidation, estates and trusts, banks, building and loan, insurance. 17 lessons. Prerequisite: C 506 or equivalent.

C 766. Principles of Business Correspondence

Discontinued. For Correspondence Course, see H 75.

ECONOMICS AND BUSINESS LAW

C 516. Business Law I

Contracts and agency relationships. 27 lessons.

C 517. Business Law II

Sales, negotiable instruments, partnership, corporations, real property, bailments, and carriers. 27 lessons. Prerequisite: C 516 or equivalent.

C 518. Business Law, Course III

Discontinued.

C 526. Elements of Economics I

The industrial revolution; development of industry in the United States; value and exchange; theory of money and credit; banking systems; international trade; foreign exchange tariffs. 32 lessons.

C 527. Elements of Economics II

Economic insecurity, wages, banking, taxation, monopolies, and trusts; public utilities, socialism, fascism, communism, planning for prosperity. 24 lessons. Prerequisite: C 526 desirable.

C 528. Economic History of the U. S.

Economic developments from the early beginnings of American history to the present. 23 lessons. Prerequisite: C 526 desirable.

C 530. Money and Banking

Basic course in the field of finance covering fundamental principles of money, foreign exchange, and banking procedures and practices. 27 lessons. Prerequisite: C 526 or equivalent.

C 533. Public Finance

Public expenditures, public revenues, and financial administration. 16 lessons. Prerequisite: C 526 and C 527 or equivalent.

C 535. Principles of Life Insurance

Investment services and business uses, types of policies, premiums, industrial and group insurance, legal interpretation. 16 lessons.

C 536. Economic Geography

The physical environment, foods, raw materials, and fuels, commerce, and manufacturing, regional geography. 16 lessons.

EDUCATION AND PSYCHOLOGY

C 563. General Psychology

Basic course in the nature, aims, and methods of psychology. 22 lessons.

C 566. New-Type or Objective Examinations

Discontinued.

C 567. Principles of Adult Education

Adult education, its operation, shortcomings, and need for improvement; problems of administration and future development of adult education program. 14 lessons.

C 569. Statistical Methods in Education

Important concepts in statistics and methods of applying them in field of education. 20 lessons. Prerequisite: H 149.

ENGLISH AND JOURNALISM

C 581. Composition I

Review of grammar and spelling, the composition of various types of themes. 14 lessons. Prerequisite: A good foundation in English grammar desirable.

C 582. Composition II

Further review of grammar and spelling, writing of business and friendly letters. 14 lessons. Prerequisite: C 581 or equivalent.

C 583. Survey of English Literature I

English literature from the beginning to the Romantic movement with special emphasis on the Elizabethan period. 12 lessons. Prerequisite: C 581 and C 582 or equivalent desirable.

C 584. Survey of English Literature II

The literature of England from the dawn of the Romantic movement to the World War. 12 lessons. Prerequisite: C 583 or equivalent.

C 585. The Short Story I

Reading of short stories for comprehension and appreciation; principles and construction of a good short story. 17 lessons. Prerequisite: A good command of the English language.

C 587. Shakespeare, Course I

C 588. Shakespeare, Course II

(Self-teaching.) Enroll for EM 130 (sec. V). For Correspondence Courses, see C 587 and C 588.

C 589. History of English Literature

Discontinued.

C 590 English Literature: Romanticism

Development of the Romantic movement, including the works of Wordsworth, Coleridge, Byron, Shelley, and Keats. 24 lessons. Prerequisite: C 583 and C 584 or equivalent.

C 591. The Contemporary Essay

A study of the various kinds of essays using the works of contemporary writers to show the development of the essay according to the author's own choice and personal taste. 16 lessons. Prerequisite: A good command of the English language.

C 592. English Literature: The Victorian Age

Writers of the Victorian period, including Tennyson, Ruskin, Carlyle, Browning,

Swinburne, the Pre-Raphaelites. 24 lessons. Prerequisite: C 583 and C 584 or equivalent.

C 593. American Literature I

A survey course in American literature, covering the period from the founding of Jamestown to the Civil War. 16 lessons. Prerequisite: C 581 and C 582 or equivalent desirable.

C 594. American Literature II

The development of American poetry and prose from the Civil War to the present time. 16 lessons. Prerequisite: C 593 or equivalent.

C 595. Newswriting

A beginner's course in journalism. The gathering and writing of news; introduction to copy editing and proofreading. 14 lessons. Prerequisite: A good foundation in English.

C 596. Feature Writing

Steps in the preparation of feature articles, types of stories, gathering of material, revision and analysis of the articles. 16 lessons. Prerequisite: College Freshman English.

FOREIGN LANGUAGES

C 661. Spoken French

(Self-teaching.) Enroll for EM 500 and EM 501 (sec. V).

C 662. Spoken Spanish

(Self-teaching.) Enroll for EM 509 (sec. V).

C 663. Spoken Italian

(Self-teaching.) Enroll for EM 503 and EM 504 (sec. V).

C 664. Spoken Portuguese

(Self-teaching.) Enroll for EM 512 (sec. V).

C 665. Spoken Turkish

(Self-teaching.) Enroll for EM 515 (sec. V).

C 666. Spoken Chinese

(Self-teaching.) Enroll for EM 506 and EM 507 (sec. V).

C 681. Intermediate French I

Grammar, vocabulary, translation, and reading for enjoyment. 24 lessons. Prerequisite: 1 year college French or 2 years high school French or equivalent.

C 682. Intermediate French II

Further review in grammar and composition, and other readings in French; continuation of C 681. 16 lessons. Prerequisite: 1 year college French or 2 years high school French or equivalent.

C 683. Intermediate French Composition
Discontinued.

C 684. Intermediate German

Review of fundamentals of German grammar, conversational and written German. 24 lessons. Prerequisite: 3 semesters college German or 3 years high school German or equivalent.

C 685. Elementary German Composition I

Selections from modern narrative and descriptive prose; assigned readings and reports. 23 lessons. Prerequisite: 3 semesters college German or 3 years high school German or equivalent.

C 687. Intermediate Spanish I

A review of Spanish grammar; translations; reading of PATA DE ZORRA. 27 lessons. Prerequisite: 1 year college Spanish or 2 years high school Spanish or equivalent.

C 688. Intermediate Spanish II

Review of Spanish grammar; reading of a novel in Spanish for enjoyment. 27 lessons. Prerequisite: 1 year college Spanish or 2 years high school Spanish or equivalent.

C 689. Intermediate Composition Spanish

Translation and composition; reading of Spanish plays. 16 lessons. Prerequisite: 1 year college Spanish or 2 years high school Spanish or equivalent.

C 690. Intermediate Norwegian

A translation and composition course in Norwegian. 27 lessons. Prerequisite: 1 year college Norwegian or 2 years high school Norwegian or equivalent.

**HISTORY, GOVERNMENT, AND
SOCIOLOGY**

C 623. Elements of Geography

Analysis and classification of physical geographic features, the processes and agents responsible for these features. 23 lessons.

C 624. The Geography of Europe

The political geography, physical environment, foods, raw materials, fuels, commerce, and manufacturing of the European countries. 17 lessons.

**C 626. History of the United States—
Colonial Period to the Civil War**

A survey of American history to the close of the Civil War, emphasizing political and economic aspects. 24 lessons. Prerequisite: C 635 or equivalent desirable.

**C 627. History of the United States—Civil
War to the Present**

General survey of American history from close of Civil War to the present. 24 lessons. Prerequisite: C 626 or equivalent desirable.

C 629. Roman Empire

Discontinued.

**C 635. Europe—16th Century to End of
Napoleonic Wars**

Survey of European history from 1500 to about 1830, tracing social, political, and economic changes. 24 lessons.

**C 636. Contemporary European History—
World War I**

World War I, revolution, peace and liquidation, and the role of the League of Nations. 36 lessons. (A senior college course.)

**C 637. Contemporary European History—
World War I to World War II**

Survey of European history from the close of World War I to 1941. 10 lessons. (A senior college course.)

C 638. Modern European History

Survey of modern European history from 1815 to 1939. 24 lessons.

C 639. The British Empire

Analysis of political democracy of Great Britain; survey of the structure of the British Empire. 24 lessons. Prerequisite: C 641 or equivalent desirable.

**C 640. Latin America and the United
States**

A contemporary study of diplomatic and commercial relations between the United States and the twenty Latin-American republics. 16 lessons. Prerequisite: C 643 or equivalent desirable.

C 641. American Federal Government

Organization and administration of the U. S. Government, its historical development, its operation and current problems. 24 lessons. Prerequisite: H 113 desirable.

C 642. American State Government

The plan, function, organization, methods, and practices of State governments. 24 lessons. Prerequisite: H 113 and C 641 or equivalents desirable.

**C 643. World Politics—World War I to the
Present**

Not available.

C 644. Municipal Government

Study of types of city government, the functions of the departments of city government, and the relation between municipal government and citizens. 16 lessons. Prerequisite: H 113 and C 641 desirable.

C 645. The Nature of Society—Introduction to the Field of Sociology

The cultural evolution of man; relation of heredity and environment; the family as a unit in society; external factors that condition culture. 16 lessons.

C 646. Social Problems

Major social problems which confront the public today; problems of population; problems of the home; women in industry; problems of industry and agriculture. 24 lessons.

C 647. Rural Life

A study of the farm community, its social and economic structure, aiming toward an understanding of methods and agencies involved in the everyday life of the modern farmer. 24 lessons.

C 648. Criminology

Problems of crime, the criminal; physical, mental, hereditary, social, and economic factors which contribute to making a criminal. 24 lessons. Prerequisite: C 645 or C 646 or equivalent desirable.

Note. Courses C 649 to C 565, inclusive, are available only to men who have held public administrative positions in civilian life.

C 649. The Technique of Municipal Administration

Nature of municipal administration; relation of administrator to council; techniques of direction; training for the municipal service; finance and planning; legal services; municipal property management; public relations. 14 lessons.

C 650. Municipal Finance Administration

Administrative approach to finance administration; municipal revenues; budget administration and expenditure control; municipal accounting; financial reporting; assessment administration; treasury management; municipal debt administration; long-term financial planning; centralized purchasing and storing. 14 lessons.

C 651. Municipal Personnel Administration

Organization of the personnel agency; classification; salary and wage standardization; recruitment; promotion; service ratings; morale and conditions of employment; discipline; organizations of municipal employees; retirement systems. 13 lessons.

C 652. Municipal Police Administration

The municipal police problem; organization and control; personnel; training; crime prevention; patrol division; criminal investigation; traffic control; communications; records; property and equipment; relations with other enforcement and identification units; the police and the public. 13 lessons.

C 653. Municipal Fire Administration

Fire insurance classification of cities; organization for fire protection; personnel administration; water supply for fire service; fire alarm signaling systems; legal aspects for fire prevention; work of municipal and State fire prevention agencies; fire investigation and incendiaryism; records and measurement of results. 13 lessons.

C 654. Municipal Public Works Administration

Public works as a municipal function; street improvement and maintenance; street cleaning and snow removal; street lighting; refuse collection and disposal; sewerage and sewage disposal; organization; personnel management; planning public works; measurements, records, and administrative reports; public relations. 13 lessons.

C 655. Municipal Recreation Administration

Recreation areas and facilities; leadership; operation of playgrounds; operation of recreation buildings and facilities; city-wide activities and special services; typical recreation programs for different types of cities. 13 lessons.

C 656. Local Planning Administration

Organization of city planning; base maps and fundamental data for city planning; basic studies for planning; zoning; housing; rehabilitation of blighted areas and slum eradication; recreation; subdivision control; public buildings and improving the appearance of the city; capital improvement programs; relationship of city planning to other planning units. 15 lessons.

MANAGEMENT AND MERCHANDISING

C 541. Advertising

Fundamentals of advertising, preparing copy and developing campaign; individual advertisements; advertising media. 16 lessons.

C 542. Merchandising

Importance and methods of retailing, forms of organization, and special problems of merchandising. 16 lessons. Prerequisite: C 544 desirable.

C 543. Cooperative Marketing

Historical background, basic philosophy, fundamental principles, possibilities, limitations, and practical methods of the cooperative movement. 24 lessons. Prerequisite: C 544 desirable.

C 544. Business Management—Policies and Methods

Modern business organization and management; organization, activities, and interrelation of the principal departments of a business. 24 lessons.

C 545. Personnel Management

Procedures and practices involved in the administration of the average personnel department in business organizations. 30 lessons. Prerequisite: C 544 desirable.

C 546. Office Management

Organization of a modern business office; lay-out of office; preparation and use of forms; selection, training, and supervision of employees; the profession of office management. 16 lessons. Prerequisite: C 544 desirable.

C 547. Labor Problems

An analysis of modern labor problems, their history, and the issues involved, proposed solutions to frequent labor problems. 20 lessons. Prerequisite: C 526 and C 527 or equivalents.

C 548. Introduction to Statistical Method

Methods of collecting, organizing, and interpreting data in different fields. 16 lessons. Prerequisite: H 149 or equivalent.

MATHEMATICS

C 712. Plane Trigonometry

Trigonometric functions; graphs, analysis; right and oblique triangle solution by natural functions and by logarithms; applications to surveying, physics, astronomy; inverse, exponential, and hyperbolic functions; trigonometric equations; DeMoivre's Theorem. 16 lessons. Prerequisite: H 149 or equivalent; H 140 desirable.

C 713. College Algebra and Trigonometry

Trigonometric functions, identities, and equations, graphs, and solution of right and oblique triangles, logarithms, inequalities, progressions, mathematic induction, theory of equations, probability, permutations, and combinations. 32 lessons. Prerequisite: H 144 or equivalent.

C 714. Plane Analytic Geometry

Curve tracing and locus problems in Cartesian and polar coordinates, the straight line, and the circle. 16 lessons. Prerequisite: C 713 or equivalent and H 147 or C 712 or equivalent.

C 715. Descriptive Geometry

The making and interpreting of the perspective drawing necessary in engineering, architecture, and various fields of design. (Drawing materials for this course are not furnished by USAFI.) 45 lessons. Prerequisites: H 144 or equivalent, and one semester of mechanical drawing on the college level.

C 716. Spherical Trigonometry

Solutions of right and oblique spherical triangles and their applications. 8 lessons. Prerequisite: C 712 or equivalent.

C 717. Differential Calculus

A study of elements of Calculus and their applications in finding areas, volumes, velocity, and acceleration, motions of celestial bodies and atoms, flow of heat and electricity, probabilities, stresses of structural steel, compound interest, gas pressures, laws of growth and decay, and countless others. 40 lessons. Prerequisite: C 714 or equivalent.

C 718. Integral Calculus

Methods of integration with applications to areas of plane curves, volumes of solids of revolution, length of curve, areas of surfaces of revolution, moments of area; centroids of revolution; and other problems in physics and mechanics. 40 lessons. Prerequisite: C 717 or equivalent.

C 719. Solid Analytic Geometry

Analytic method applied to figures of three dimensions; coordinates in space the plane, straight line, surfaces, and curves. 16 lessons. Prerequisite: C 714, or equivalent; C 718 not a prerequisite.

C 724. Differential Equations

Fundamental types of ordinary differential equations, with applications to problems in geometry, physics, and mechanics. 16 lessons. Prerequisite: C 718 or equivalent.

C 725} Engineering Mathematics I

C 726} Engineering Mathematics II

Discontinued.

SCIENCE

C 748. General Geology

The earth, materials which compose it, and the way in which these materials are arranged. 24 lessons.

C 750. Weather and Climate

Causes of weather changes, major types of climate found in different parts of the world. 12 lessons. Prerequisite: Physical geography or general science; H 156 desirable.

College and University Correspondence Courses

A. Enrollment Procedure¹

Write to the college or university of your choice, stating your educational background, the course or courses you wish to study, and whether you desire academic credit. Ask the university for a list of its courses available through USAFI with specific information as to the number, title, content, cost, and prerequisites for each course. If you desire credit, ask the college whether the course of your choice is acceptable. In case you wish credit at some institution other than the one offering the course you wish to study, you should make certain that the institution where you expect to receive credit approves the course.

When you have received the information and have chosen the course you desire, fill out completely two USAFI application blanks (WD AGO Form 0824) and submit to the Commandant, United States Armed Forces Institute, Madison 3, Wisconsin. Secure the signature of your organization commander in the proper place on the application blank. Inclose remittance with the application blank. Remittance must be by money order, cashier's check, or certified check payable to the university. Money orders must be drawn on the postmaster of the city where the university is located.

Service personnel stationed within the continental limits of the United States may ordinarily enroll for only one course at a time. Personnel assigned to sea duty or who are overseas may enroll for two courses simultaneously.

B. Fees²

For enlisted personnel of the Army and enlisted and officer personnel of the Navy, Marine Corps, and Coast Guard, the Government will pay one-half the total cost of the course, or \$20.00, whichever is less. The student pays the remainder; in odd amounts the student pays the extra one-half cent. Commissioned officers of the Army, flight and warrant officers of the Army must pay the total cost of the course. Service personnel enrolling in a university correspondence course do not pay the regular \$2.00 USAFI registration fee.

C. Fields of Study³

Courses in the following fields are offered by one or more of the co-operating colleges or universities. Keep in mind that this is a list of the fields of study. Within a given field there may be many different courses.

Accounting
Advertising
Agriculture

Air Conditioning
Art
Astronomy

Aviation and Aero-
nautics
Biology

¹ Supplements page 10, USAFI Catalog, Second Edition.

² Supplements pages 7-8, USAFI Catalog, Second Edition.

For detailed list of courses, see pages 74-89, USAFI Catalog, Second Edition.

Blue Print Reading	English	Plumbing
Bookkeeping	Finance	Photography
Botany	Forestry	Psychology
Building Construction	Geography	Radio
Business	Geology	Refrigeration
Chemistry	Government	Science
Civics	Health and Hygiene	Shorthand
Criminology	History	Sociology
Economics	Hydraulics	Speech
Engineering	Journalism	Statistics
Architectural	Languages	Steam Engines
Chemical	Law	Surveying and Map-
Civil	Literature	ping
Diesel	Mathematics	Traffic Management
Electrical	Mechanics	Typewriting
Industrial	Navigation	Writing
Mechanical	Philosophy	Zoology
Electricity	Physics	

D. Cooperating Colleges and Universities *

The following is a list of the colleges and universities offering correspondence courses in cooperation with the United States Armed Forces Institute:

Alabama, University of, University, Alabama.	Denver, University of, Denver, Colorado.
Arizona State Teachers College, Tempe, Arizona.	Eastern Kentucky State Teachers College, Richmond, Kentucky.
Arkansas State Teachers College Normal Station; Conway, Arkansas.	Florida, University of, Gainesville, Florida.
Arkansas, University of Fayetteville, Arkansas.	Fort Hays Kansas State College, Hays, Kansas.
Ball State Teachers College, Muncie, Indiana.	Georgia, University System of, 223 Walton Street, N. W. Atlanta 3, Georgia.
Brigham Young University, Provo, Utah.	Hawaii, University of, Honolulu, T. H.
California, University of, Berkeley, California.	Idaho, University of, Moscow, Idaho.
Canadian Legion War Services, Inc., 27 Goulburn Avenue, Ottawa, Ontario, Canada.	Illinois, University of, Urbana, Illinois.
Central Missouri State Teachers College, Warrensburg, Missouri.	Indiana State Teachers College, Terre Haute, Indiana.
Central State College, Edmond, Oklahoma.	Indiana University, Bloomington, Indiana.
Chicago University of, Chicago, Illinois	Iowa State Teachers College, Cedar Falls, Iowa.
Colorado State College of Education Greeley, Colorado.	Iowa, The State University of, Iowa City, Iowa.
Colorado, University of, Boulder, Colorado.	Kansas State Teachers College, Pittsburg, Kansas.

* Replaces pages 70-73, USAFI Catalog, Second Edition.

Kansas, University of, Lawrence, Kansas.
 Kent State University, Kent, Ohio.
 Kentucky, University of, Lexington, 29, Kentucky.
 Louisiana State University, University Station, Baton Rouge, La.
 Loyola University, Chicago, Illinois.
 Massachusetts State Dept. of Education, 200 Newbury Street, Boston, Mass.
 Michigan State Normal College, Ypsilanti, Michigan.
 Michigan, University of, Ann Arbor, Michigan.
 Minnesota, University of, Minneapolis, Minnesota.
 Mississippi Southern College, Hattiesburg, Mississippi.
 Missouri, University of, Columbia, Missouri.
 Montana State University, Missoula, Montana.
 Morehead State Teachers College, Morehead, Kentucky.
 Murray State Teachers College, Murray, Kentucky.
 Nebraska, University of, Lincoln, Nebraska.
 New Mexico Highlands University, Las Vegas, New Mexico.
 New Mexico State Teachers College, Silver City, New Mexico.
 New Mexico, University of, Albuquerque, New Mexico.
 North Carolina State College, Raleigh, North Carolina.
 North Carolina, University of, Chapel Hill, North Carolina.
 North Dakota Agricultural College, State College Station; Fargo, N. Dak.
 North Dakota, University of, University Station, Grand Forks, N. Dak.
 Northern Michigan College of Education, Marquette, Michigan.
 Northern State Teachers College, Aberdeen, South Dakota.
 Northwest Missouri State Teachers College, Maryville, Missouri.
 Northwestern State College, Alva, Oklahoma.
 Ohio University, Athens, Ohio.
 Oklahoma Agricultural and Mechanical College, Setillwater, Oklahoma.
 Oklahoma, University of, Norman, Oklahoma.
 Omaha, University of, Omaha, Nebraska.
 Oregon State System of Higher Education, Eugene, Oregon.
 Pennsylvania State College, State College, Pennsylvania.
 Prairie View State Normal and Industrial College, Prairie View, Texas.
 Sam Houston State Teachers College, Huntsville, Texas.
 South Carolina, University of, Columbia, South Carolina.
 South Dakota, University of, Vermillion, South Dakota.
 Southeast Missouri State Teachers College, Cape Girardeau, Missouri.
 Southern Methodist University, Dallas, Texas.
 Sul Ross State Teachers College, Alpine, Texas.
 Tennessee, University of, Knoxville 16, Tennessee.
 Texas College of Arts and Industries, Kingsville, Texas.
 Texas Technological College, Lubbock, Texas.
 Texas, The University of, Austin 12, Texas.
 Graduate School, U. S. Dept. of Agriculture, Washington, D. C.
 Utah, State Agricultural College, Logan, Utah.
 Utah, University of, Salt Lake City, Utah.
 Virginia State College for Negroes, Ettrick, Virginia.
 Virginia, University of, Charlottesville, Virginia.
 Washington, University of, Seattle, Washington.
 Western Carolina Teachers College, Cullowhee, North Carolina.

Western Kentucky State Teachers
College, Bowling Green, Ken-
tucky.

Western Michigan College of Edu-
cation, Kalamazoo, Michigan.

Western State College of Colorado,
Gunnison, Colorado.

West Texas State Teachers College,
Canyon, Texas.

Wisconsin, University of, Madison,
Wisconsin.

Wyoming, University of, Laramie,
Wyoming.

Education Manuals *

(Self-Teaching Texts, Reprints of Standard Texts, Language Materials, and GI Roundtable Manuals.)

A. Self-Teaching Texts and Reprints of Standard Texts

1. *Description.* Self-teaching texts are designed to be studied without the aid of an instructor and without submitting lessons for correction. They are especially written for individual study, but may be used for group study classes.

Reprints of standard texts are intended primarily for group study. Students may, however, enroll for these texts on the same basis as self-teaching texts.

When a student has completed the study of a self-teaching text or a reprint of a standard text he may apply for an end-of-course test in order to establish evidence of his accomplishment. Application for end-of-course test must be made on AFI Form 68, "Application for Institute Test or Examination."

2. Individual Enrollment Procedure and Fees.

a. *Enrollment procedure.* Make a first and second choice from the Education Manuals (EM) listed. Obtain an Institute application blank (WD AGO Form 0824) from the Information-Education Officer, Educational Services Officer, or Marine Corps Special Services Officer; fill it out completely; secure the approval of your organization commander and send the application blank (and the remittance, if you are not already enrolled) to the Commandant, United States Armed Forces Institute, Madison 3, Wisconsin. By indicating a second choice, you may avoid delay if your first choice is out of stock when the application is received. Remittance must be by money order, cashier's check, or certified check, and payable to Treasurer of the United States, Madison 3, Wisconsin. *Do not send cash or personal checks.*

Service personnel stationed within the continental limits of the United States may ordinarily enroll for only one course at a time. Personnel assigned to sea duty or who are overseas may enroll for two courses simultaneously.

b. *Fees.* For USAFI courses (Educational Manuals) enlisted personnel of the Army and enlisted and officer personnel of the Navy and the Coast Guard must submit a \$2.00 fee with the first application. The applicant then becomes eligible without charge for additional courses—provided an acceptable standard of work is maintained. Commissioned officers of the Army, flight and warrant officers of the Army pay \$2.00 for each Educational Manual for which enrolled.

3. Requisitions for Classes—Army.

a. Education Manuals for use in classes are furnished by the Institute upon receipt of Requisition (WD AGO Form 445) properly signed by the appropriate officer and supported by a statement of the number of students who are expected to attend the classes. Requisitions *must* be submitted

*This section replaces Section X, USAFI Catalog, Second Edition.

through military channels. (See par. 5b, Sec. VI, WD Cir. No. 68, 1944, for instructions for submitting requisitions for textbooks for classes.)

b. End-of-Course tests are provided for members of classes upon receipt of AFI Form 68, "Application for Institute Test or Examination." Each student must fill out a test application blank. Applications may be submitted for the class to USAFI, Madison 3, Wisconsin, with a covering letter. This should be accomplished in advance to insure receipt of the tests when they are needed. An officer not enrolled with the USAFI must enroll by submitting WD AGO Form 0824 and AFI Form 68, together with a \$2.00 fee (Fee includes Education Manual and test). No fee is required of enlisted men.

4. *Distribution to Appropriate Headquarters and to Libraries—Army.*

a. Regimental headquarters or similar organizations may requisition EM's for display and reference use. These headquarters will be supplied a sample kit of EM's covering the various fields of study. Requisition (WD AGO Form 445) must include a statement of the use to be made of kit and its accessibility to enlisted men.

b. Post libraries will be furnished one copy of each available EM upon requisition (WD AGO Form 445). Hospital libraries are furnished EM's for library use in accordance with the provisions of pars. 1 and 5, Sec. II, ASF Circular No. 74, 1944, and Sec. II, ASF Circular No. 108, 1944, AAF.

5. *Requisition—Education Manuals—Navy, Coast Guard.* Navy organizations desiring bulk supplies of Education Manuals for off-duty educational programs should communicate with the Educational Services Section, Training, Bureau of Naval Personnel, Washington 25, D. C. Not all Education Manuals listed in this Information Bulletin, however, are available for bulk distribution through the Educational Services Section. A copy of NavPers 16410, "List of Materials Available to Navy and Coast Guard Organizations for use in Off-Duty Classes," may be obtained upon request to the Educational Services Section.

6. *Requisition—Education Manuals—Marine Corps.* Marine Corps organizations desiring Education Manuals for off-duty educational programs will submit requisitions to the Special Services Branch, Headquarters, United States Marine Corps, Washington 25, D. C. A catalog which lists Education Manuals available to Marine Corps organizations for use in off-duty classes may be obtained from the Special Services Branch.

a. *Self-teaching texts†*

Note. Self-teaching Texts are generally of High School level. All Self-teaching Texts listed in this section are available for individual enrollment as self-teaching courses. Enrollment should be by EM number.

*Issued on the Basis of 1 to 20 with the EM with which it is to be used.

**Workbook issued on the basis of one workbook to each manual with which it is to be used.

AGRICULTURE

EM 800 What is Farming?

Growing crops, feeding and breeding, bookkeeping, marketing, power machinery, study and planning.

EM 810: Managing a Farm

Selection of size, type, layout, and equipment for a farm; use of records, farm management problem.

EM 815. Livestock Farming

The art and science of breeding, feeding, and caring for farm animals.

ARMY CLERICAL

EM 900. Military Correspondence

Forms of military letters, indorsements, and messageforms.

†Replaces pages 91-93, USAFI Catalog, Second Edition.

EM901. Military Orders

Fundamentals of military orders; nature and character of the various kinds of written orders.

EM 902. Basic Military Records—Course I

The morning report, daily sick report, duty roster, company supply, and pay allotments.

****Workbook for Basic Military Records—Course I**

EM 903. Basic Military Records—Course II

The qualification card, service record, furlough certificate, discharge certificate, statement of service, and personnel procedure.

****Workbook for Basic Military Records—Course II**

EM 904. Army Typewriting

The correct forms for all types of military typed materials.

****Workbook for Army Typewriting**

BUSINESS

EM 700. Bookkeeping and Accounting: Fundamental Principles—Course I

Principles and terms, bookkeeping cycle, personal and family records.

EM 702. Bookkeeping and Accounting for a Mercantile Business—Course II

Application of the basic principles of bookkeeping to the records of a business that buys and sells merchandise.

EM 705. Bookkeeping and Accounting for a Retail Store—Course III

Advanced principles of bookkeeping illustrated through a retail store system.

EM 708. Bookkeeping and Accounting—Course IV, Partnerships

Advanced principles of bookkeeping applied to partnerships.

EM 711. Bookkeeping and Accounting—Course V, Corporations and Manufacturing

Application of advanced bookkeeping principles to a corporation and a manufacturing business.

***EM 712. Solutions Manual for Bookkeeping and Accounting—Courses I-V**

Solutions in detail for EM's 700, 702, 705, 708, 711 and solutions for Test Exercises given in correspondence pamphlets (Catalog Nos. H 55, H 56, H 57, H 58, and H 60) used when various courses in bookkeeping and accounting are presented by correspondence.

EM 714. The Small Business—Course I, Organization

Problems in starting a business; insurance, financial records and budgeting, banking, and financial problems, relations of business and government, legal relations.

EM 715. The Small Business—Course II, Operation

Housing, arrangement, lay-out; problems of purchasing, stock, marketing, merchandising, advertising, sales promotion, shipping, transportation, credit, and collection.

EM 716. Introduction to Business Law—Course I

Sources and administration of law and the principles of law as applied to contracts, sale of goods, negotiable instruments.

EM 717. Introduction to Business Law—Course II

Principles of law as applied to insurance, guaranty, bailments, agency, master and servant, partnerships, corporations, and property.

EM 720. Shorthand (Gregg)

Basic principles of shorthand, with vocabulary based on most frequently used words.

****Gregg Shorthand Workbook**

EM 722. Advanced Shorthand (Gregg)

A course to develop speed in shorthand writing.

***Set of 15 double-faced records**

EM 725. Fundamentals of Typewriting

Development of keyboard control, improvement of typing power, problem typing.

EM 726. Business Typewriting

(Textbook and Workbook.) Practices to increase speed after mastery of typing fundamentals: business correspondence forms.

***EM 726a. Instructor's Course Outline, Business Typewriting** (For use with EM 726.)

ENGLISH

EM 100. English Grammar

Basic elements of English grammar. How to avoid grammatical errors.

EM 101. The Mechanics of English

Mechanics of English including punctuation, spelling, and use of the dictionary; writing of letters, money orders, and telegrams.

***EM 101a. Instructor's Course Outline,
Mechanics of English**

(For use with EM 101.)

EM 102. Building Good Sentences

Sentence structure, with practice in expressing a thought and transforming a bad sentence into a good one.

EM 612. America in Literature

Selections from the writings of American authors of the past century and a half, depicting American life.

**EM 613. A Study Guide to Accompany
America in Literature**

(To be used with EM 612.)

HISTORY AND GOVERNMENT

EM 200. American History—Course I

Rise of American democracy from 1492–1840.

EM 201. American History—Course II

Democracy's struggle and triumph over forces of special privilege in the United States between 1840 and 1942.

EM 202. American History—Course III

Industrialization of America from colonial times to the present.

EM 203. American History—Course IV

Social and cultural America; rise of America as a world power.

**EM 204. History of Modern Europe—
Course I**

Absolute government and democratic revolution. The history of Europe during the seventeenth and eighteenth centuries (1600–1815).

**EM 205. History of Modern Europe—
Course II**

Democracy, Nationalism, and Industrial Revolution. The history of Europe in the nineteenth century.

**EM 206. History of Modern Europe —
Course III**

Imperialism and world conflict. The history of Europe from the late nineteenth century to the present time.

EM 209. History of China.

History of the Chinese people from the prehistoric period to 1944.

EM 214. American Government—Course I

Foundations of American Government.

**EM 215. American Government—Course
II**

Functioning of local, State, and national governments; making and administering laws, activities of our Government in conservation of natural resources, public welfare, health, education, recreation, social security; aiding, regulating, and conducting business.

**EM 216. American Government—Course
III**

Government finance, foreign policy, and the rights and duties of the citizen.

MATHEMATICS

EM 300. Review Arithmetic—Textbook I

Addition, subtraction, multiplication, and division of whole numbers and fractions.

****EM 301. Review Arithmetic—Practice
Book I**

(For use with EM 300.)

EM 302. Review Arithmetic—Textbook II

Decimals, percents, graphs, and applications of arithmetic.

****EM 303. Review Arithmetic—Practice
Book II**

(For use with EM 302.)

EM 304. A First Course in Algebra—Part I

General and directed numbers, formulas and equations, graphs, simultaneous linear equations, multiplication and division of algebraic numbers.

**EM 305. A First Course in Algebra—Part
II**

Special products and factors, algebraic fractions, powers, roots, radicals, ratio, proportion, and variation.

EM 306. Plane Geometry—Course I

Fundamental constructions, proof, triangles, parallelograms, and circles.

EM 307. Plane Geometry—Course II

Constructions, locus, ratio and proportion, polygons, and geometry in aeronautics.

EM 308. Basic Mathematics—Course I

Review of arithmetic and the fundamental principles of geometry.

EM 309. Basic Mathematics—Course II

Fundamental principles of Algebra and Trigonometry.

EM 310. Solid Geometry

With solutions.
Geometrical properties and proofs of three-dimensional figures.

EM 311. Plane Trigonometry

Trigonometric functions, reduction formulas, graphs, identities and equations, solution of triangles, and logarithms.

MECHANICS

EM 950. Auto-Mechanics—Course I

The design, operation, and service of the automobile engine.

EM 951. Auto-Mechanics—Course II

Cooling, lubrication, and fuel systems.

EM 952. Auto-Mechanics—Course III

Automotive electricity.

EM 953. Auto-Mechanics—Course IV

The power flow in an engine: clutches, transmissions, axles, frames, and car suspension.

SCIENCE AND RADIO

EM 400. Physics—Course I

The field of mechanics from a discussion of the properties of matter through basic principles of machines.

****Workbook for Physics—Course I**

EM 402. Physics, Course II

Principles and applications of heat, sound, and light.

****Workbook for Physics—Course II**

EM 404. Physics, Course III

Basic principles of electricity and radio.

****Workbook for Physics—Course III**

EM 415. Radio for Beginners

Principles, theories, equipment, and methods of radio transmission and receiving.

EM 416. Electricity for Beginners

Electric current, magnetism, generators, motors. Designed for the student who knows nothing about electricity.

EM 286. Elements of Healthful Living

Personal and community health and health problems. A college level course.

EM 287. Personal and Community Health
(A study guide to accompany EM 286.)

EM 495. The Human Organism and the World of Life

A broad view of scientific knowledge concerning the processes of life. A college level course.

EM 496. Biological Science

(A study guide to accompany EM 495.)

READING

EM 155. Improving Your Reading—Book One

Assistance for persons learning to read.

EM 156. Improving Your Reading—Book Two

A continuation of EM 155, with sentences and paragraphs to read.

EM 157. Improving Your Reading—Book Three

A continuation of EM 156, with stories, articles, and suggestions for getting the meaning of sentences and gathering facts from the material read.

EM 158. Improving Your Reading—Book Four

Learning to remember material read, to organize ideas, to find information quickly, and to read rapidly.

MISCELLANEOUS

EM 600. How to Sing and Read Music

(For group instruction only. Not available by individual enrollment. Manual is based upon and is to be used with a number of phonograph records.) Facts worth knowing about close harmony, and hints on improvising parts for familiar songs.

EM 905. Prison Work as a Postwar Career

Set-up of the Federal Prison System and the advantages of entering such work as a postwar career.

b. Reprints of standard texts†

Note. Key to level and type:

HS—Reprint of a standard high school textbook.

C—Reprint of a standard college textbook.

*Issued on the basis of 1 to 20 with the EM with which it is to be used.

**Workbook issued on the basis of one workbook to each manual with which it is to be used.

AERONAUTICS

EM 910. Elements of Aeronautics

(HS) (Pope and Otis, 1941.) Aerodynamics, aeronautical meteorology, and navigation.

*EM 910a. Instructor's Course Outline, Elementary Aeronautics

(HS)

*EM 911. Teacher's Manual and Key to Elements of Aeronautics

(HS)

AGRICULTURE

EM 856. Successful Poultry Management

(HS) (M. A. Jull, 1943.) Husbandry practices, marketing methods, and competent management in a poultry enterprise.

EM 858. Crop Management and Soil Conservation

(HS) (Cox and Jackson, 1937.) Major operations required for successful growing and marketing of crops. Reducing cost of production, improving crop quality, maintaining soil fertility, and marketing efficiently.

EM 861. Farm Buildings

(C) (Carter and Foster, 1941.) Economics, cost, environment, arrangement, materials, and structure of farm buildings.

EM 862. Farm Shop Practice

(HS) (M. S. Jones, 1939.) Farm woodwork and carpentry, tool sharpening and fitting, cold metalwork, pipework, soldering and sheet metalwork, blacksmithing, harness, belt, and ropework.

**Manual of Farm Shop Practice

(A workbook.) (HS)

EM 864. Farm Records

(C) (J. A. Hopkins, 1942.) Practical applications of accounts and records in the management of a farm.

EM 866. Marketing of Farm Products

(HS) (Norton and Scranton, 1937.) Marketing problems of the individual farmer, including an introduction to co-operative marketing.

EM 870. Dairy Cattle

(C) (Yapp and Nevens, 1941.) Selection, feeding, and management of dairy cattle herds.

EM 871. Animal Sanitation and Disease Control

(C) (R. R. Dykstra, 1942.) Symptoms, causes, prevention, and control of animal diseases and ailments.

EM 873. Beef Cattle

(C) (R. R. Snapp, 1939.) Feeding and management of beef cattle in the corn belt states.

EM 874. Pork Production

(C) (W. W. Smith, 1937.) Feeding, management, care, cost, marketing, judging, breeding, and disease prevention in hogs.

EM 879. Diseases and Parasites of Poultry

(C) (Barger and Card, 1943.) Prevention and control of diseases and parasites of domesticated birds.

EM 880. Turkey Management

(C) (Marsden and Martin, 1944.) Turkey classification, breeding, pedigreeing, incubation, brooding, rearing, feeding, and marketing. Diagnosis of diseases and their prevention and control.

EM 883. Cotton

(C) (H. B. Brown, 1938.) The plant, production, marketing, products and uses of cotton.

EM 884. Growing Tree and Small Fruits

(HS) (Knapp and Auchter, 1941.) Managing, growing, harvesting, storing and marketing of tree and small fruits.

EM 885. The Vegetable Growing Business

(C) (R. A. and G. S. Watts, 1940.) Principles and practices, science, and art of growing and marketing vegetables.

EM 886. Forestry in Farm Management

(C) (Westveld and Peck, 1941.) Value and usefulness of farm forests, methods of handling them, and the means of making them real farm assets.

EM 942. An Introduction to American Forestry

(C) (S. W. Allen, 1938.) Interrelationship of the art and science of forestry, and the technical study of the business of forestry.

†Replaces pages 93-96, USAFI Catalog, Second Edition.

BUSINESS

EM 703. Textbook of Office Management
(C) (Leffingwell and Robinson, 1943.) The office manager's task of getting the office work done well, quickly, and at a reasonable cost.

EM 706. Applied Secretarial Practice
(HS) (J. R. Gregg, 1941.) Business customs and procedures essential to a private secretary.

***EM 707. Teacher's Manual for Applied Secretarial Practice**
(HS)

EM 718. Pitman Shorthand Speed Drills and Keys

(HS) (P. Moser, 1939.) A text designed to follow the basic course in Pitman shorthand for the purpose of developing dictation skill.

EM 728. Essentials of Business Arithmetic
(HS) (Kanzler and Schaaf, 1943.) Fundamentals of arithmetic and their applications to business problems.

***EM 729. Essentials of Business Arithmetic—Instructor's Manual.**
(HS)

EM 730. Fundamentals of Advertising.
(HS) (Rowe and Fish, 1943.) Problems of advertising, advertising media, and copy writing.

****Workbook for Fundamentals of Advertising.**
(HS)

***EM 732. Instructor's Manual for Fundamentals of Advertising**
(HS)

EM 740. Real Estate Selling and Leasing
(C) (N. L. North, 1938.) The successful leasing and selling of the various classes of property.

EM 746. Business Filing
(HS) (Bassett and Agnew, 1943.) Basic principles of alphabetical, numerical, geographical, and subject filing, including Army and Navy filing.

***EM 747. Instructor's Manual for Business Filing**
(HS)

EM 748. A Practical Course in Successful Selling

(HS) (H. Simmons, 1939.) General principles of selling for the field salesman.

EM 749. Modern Business English
(HS) (Davis, Lingham, and Stone, 1940.) Business letter writing and the improvement in the use of English in business.

****Business English Workbook**
(HS)

***EM 751. Teacher's Key to Accompany Modern Business English**
(HS)

Teacher's Key to Accompany Business English Work book
(HS)

EM 754. Principles of Business Law—Volumes 1 and 2

(C) (Dillavou and Howard, 1940.) Fundamental principles, correlated with selection of cases demonstrating how these principles apply to concrete cases.

***EM 755. Instructor's Manual for Principles of Business Law**
(C)

EM 756. Our Modern Banking and Monetary System—Volumes 1 and 2

(C) (R. G. Thomas, 1942.) Nature and operation of our money and banking systems, and the theories of money and prices.

EM 758. Life Insurance

(C) (J. B. MacLean, 1939.) Types of life insurance and policy terms, mortality table, premium rates, reserve, dividends, risk selection, assets. Organization, regulation, and taxation of life insurance companies.

EM 759. Insurance

(C) (A. H. Mowbray, 1937.) Risk, the insurance contract, types of insurance carriers, the problems of the insurance carrier, state supervision of private insurance, insurance in state policy.

EM 764. Auditing Theory and Procedure

(C) (Sherwood and Culey, 1940.) A well-balanced presentation of both the theory and procedure of auditing, assuming a thorough knowledge of the principles of accounting.

****Workbook for Auditing Theory and Procedure**
(C)

***EM 765. Teacher's Manual for Auditing Theory and Procedure**
(C)

EM 767. Accounting Principles—Volume 1

(C) (McKinsey and Noble, 1944.) Introductory principles of accounting, preparation of statements, accounting books, and records, bookkeeping procedure for selling organizations, partnerships.

****Working Papers for Accounting Principles—Volume 1**
(C)

EM 768. Accounting Principles—Volume 2

(C) (McKinsey and Noble, 1944.) A continuation of EM 767. Corporation accounting, special types of accounting procedures, applications of accounting principles in the management of business.

****Working Papers for Accounting Principles—Volume 2**

(C)

***EM 769. Manual and Solutions for Accounting Principles—Volumes 1 and 2**

(C)

***EM 770. Accounting Tests to Accompany Accounting Principles—Volume 1**

(C)

***EM 771. Accounting Tests to Accompany Accounting Principles—Volume 2**

(C)

EM 772. Cost Accounting Principles and Practice—Volume 1

(C) (J. J. W. Neuner, 1942.) Survey of the basic principles of cost accounting.

****Practice Set No. 1 to Accompany Cost Accounting—Volume 1**

(C)

EM 773. Cost Accounting Principles and Practice—Volume 2

(C) (J. J. W. Neuner, 1942.) Specialized and advanced cost accounting. A continuation of EM 772.

****Practice Set No. 2 to Accompany Cost Accounting—Volume 2**

(C)

***EM 774. Solutions Manual for Cost Accounting—Volumes 1 and 2**

(C)

***EM 775. Objective Tests for Cost Accounting—Volume 1**

(C)

***EM 776. Objective Tests for Cost Accounting—Volume 2**

(C)

EM 777. Office Machines Course

(HS) (P. L. Agnew, 1942.) Instruction in the use of full keyboard and ten-key adding listing machines, crank-driven and key-driven calculators.

***EM 778. Manual for Office Machines Course**

(HS)

EM 781. Credits and Collections

(C) (Ettinger and Golieb, 1933.) Correct principles and practice of credit management with special attention to mercantile credit.

EM 783. Personnel Management and Industrial Relations—Volumes 1 and 2

(C) (Yoder, 1942.) Employee-employer relations and the managerial aspect of industrial relations.

EM 784. Wholesaling Principles and Practice

(C) (Beckman and Engle, 1937.) A scientific treatment and analysis of wholesaling. Nature and evolution of wholesaling, modern wholesaling systems, operation and management of a wholesale business, special economic aspects and trends of wholesaling.

EM 785. Merchandising Techniques

(C) (Hogadone and Beckley, 1942.) Retail merchandising theory and practical application.

EM 786. Retailing: Principles and Practices

(HS) (G. Richert, 1938.) Retailing principles and practices of buying, advertising, selling and store management.

***EM 787. Teacher's Handbook for Retailing: Principles and Practices**

(HS)

***EM 788. Tests for Retailing Principles and Practices**

(HS)

EM 789. Fundamentals of Selling

(HS) (Walters and Wingate, 1942.) Functions of sellers, basic knowledge needed in selling, the seller, sales transaction, special mediums for selling; selling policies, selling oneself.

****Workbook for Use With Fundamentals of Selling**

(HS)

***EM 790. Teacher's Manual for Fundamentals of Selling**

(HS)

EM 797. Business Economic Problems, and Workbook

(HS) (Shields and Wilson, 1942.) Money and credit, wealth, politics, taxes, marketing, labor, and agriculture.

***EM 798. Instructor's Manual for Business Economic Problems**

(HS)

***EM 799. Achievement Tests for Business Economic Problems**

(HS)

ECONOMICS AND SOCIOLOGY

EM 221. *Americna Economic Problems*

(HS) (Patterson, Little and Burch, 1941.) Production, business and financial organizations, consumption and distribution, labor policies, agricultural programs, and programs of economic reorganization.

EM 222. *Economic Geography*

(HS) (Colby and Foster, 1940.) Man's use of his economic environment in making a living. A study of the basic resources and major industries of the leading nations of the world.

****Investigations in Industries and Resources to Accompany Economic Geography**
(Workbook.) (HS).

*EM 224. *Key to Investigations in Industries and Resources*

(For use with EM 222.) (HS).

EM 226. *General Anthropology*

(C) (Edited by Franz Boas, 1938.) History of mankind, human origins, differentiation of race, development of language, discoveries and inventions, means of subsistence, economic organization of primitive peoples, social life, government, culture and religion. Methods of research.

EM 230. *Economic Geography*

(C) (Jones and Darkenwald, 1941.) A study of the production and distribution of the chief commercial products of the world.

EM 266. *Principles of Criminology*

(C) (E. H. Sutherland, 1939.) The fundamentals of criminology using the theory of criminal behavior as the point of departure.

EM 268. *A Study of Rural Societj*

(C) (Kolb and Brunner, 1940.) Organization and changes of rural society from the point of view of important backgrounds, recent developments, and trends.

EM 295. *Labor Problems in American Industry—Volumes 1 and 2*

(C) (C. R. Daugherty, 1941.) Psychological, social, economic, historical, and political factors in industrial relations; labor disharmony.

EM 763. *Economics, Principles and Problems—Volumes 1 and 2*

(C) (Gemmill and Blodgett, 1942.) Production, price, determination, income distribution, labor, and standards of living, medium of exchange, government and economic life.

EDUCATION, PSYCHOLOGY, AND PHILOSOPHY

EM 426. *Psychology and Life*

(HS) (F. L. Ruch, 1941.) A study of the thinking, feeling and doing of people, including a section on physiological backgrounds.

EM 478. *Principles of Abnormal Psychology*

(C) (E. S. Conklin, 1944.) Introduction to certain special fields of psychological investigation. A knowledge of general psychology is presupposed.

EM 481. *Principles of Applied Psychology*

(C) (A. T. Poffenberger, 1942.) Generalizations in the field of applied psychology, illustrated with research data.

EM 487. *Psychology of Adjustment*

(C) (L. F. Shaffer, 1936.) A study of the problems of human adjustment from the standpoint of objective psychology.

*EM 488. *Objective Tests for the Psychology of Adjustment*

(C)

EM 490. *Industrial Psychology*

(C) (J. Tiffin, 1942.) Application of psychology to employee selection and placement, reduction of accidents, solution of visual problems, improvement of merit rating and training methods, and the measurement and improvement of employee morale.

EM 615. *An Introduction to Modern Philosophy*

(C) (A. Castell, 1943.) Readings and comments on philosophical problems in theology, metaphysics, epistemology, ethics, political theory, philosophy of history

EM 618. *Human Nature and Conduct*

(C) (J. Dewey, 1944.) A discussion of the place of habit, impulse, and intelligence in conduct.

EM 621. *An Introduction to Logic and Scientific Method*

(C) (Cohen and Nagel, 1934.) Propositions, forms of inference, scientific method, probability, and fallacies.

EM 761. *Psychology Applied to Life and Work—Volumes 1 and 2*

(C) (H. W. Hepner, 1941.) Methods of interpreting and influencing the behavior of friends, business associates, and employees.

*EM 762. *Instructor's Manual for Psychology Applied to Life and Work*

(C)

EM 913. Introduction to American Public Education

(C) (C. A. DeYoung, 1942.) An overview of all education in which the American public invests its time or money, or both.

EM 917. Educational Psychology—Volumes 1 and 2

(C) (Gates, Jersild, McConnell, Challman, 1942.) A survey of the facts and principles of educational psychology most valuable to the teaching profession.

EM 921. Foundations of Modern Education

(C) (E. H. Wilds, 1942.) The evolution of educational theory from primitive man down to the present time.

EM 929. Fundamentals of Public School Administration—Volumes 1 and 2

(C) (Ward G. Reeder, 1941.) Administration of instruction and pupil personnel, the school plant, school business affairs, and instructional materials.

EM 932. Progressive Methods of Teaching in Secondary Schools—Volumes 1 and 2

(C) (N. L. Bossing, 1942.) Techniques of classroom instruction and their effectiveness in attaining the aims of education.

EM 935. Modern Secondary Education—Volumes 1 and 2

(C) (A. A. Douglass, 1938.) A study of the purposes of the American secondary school and evaluation of ways and means by which those purposes are accomplished.

EM 939. Measurement and Evaluation in the Secondary School

(C) (Greene, Jorgensen, and Gerberich, 1943.) The effective use of measurement and evaluation instruments in improving the results of teaching.

ENGLISH AND JOURNALISM

EM 104. Writer's Guide and Index to English

(C) (P. G. Perrin, 1944.) A description of current American usage and style.

***EM 105. Answer Key for Writer's Guide and Index to English**

(C)

EM 109. From Beowulf to Thomas Hardy—Volumes 1, 2, 3, and 4

(C) (R. Shafer, 1939 and 1940.) Introductory course in the general history of English literature.

EM 114. American Life in Literature—Volumes 1, 2, 3, and 4

(C) (Edited by J. B. Hubbell, 1936.) A study of American literature and the relationship between our literature and American life.

EM 125. Principles and Types of Speech

(C) (A. H. Monroe, 1944.) An exposition of principles of speech-making, together with specimens which show their practical application.

EM 130. Shakespeare

(C) (Edited by T. M. Parrott, 1938.) The life of Shakespeare, and twenty-three of his plays and the sonnets.

EM 131. Modern American and British Poetry—Volumes 1 and 2

(C) (L. Untermeyer, 1942.) A selection of American and British poetry with brief biographies of the authors.

EM 907. Modern News Reporting

(HS) (C. Warren, 1934.) Work of the newspaper reporter.

HISTORY AND GOVERNMENT

EM 219. World History—Volumes I and II

(HS) (Boak, Slosson, and Anderson, 1942.) History of civilization from a world point of view.

EM 238. Political and Cultural History of Modern Europe—Volumes I-IV

(C) The forming of modern Europe: revolutionary developments of the modern world; liberal, romantic, democratic, and realist Europe, an embattled and nationalist world since 1910. (1830 to the present.)

****Map supplement**

EM 240. Medieval History

(C) (C. Stephenson, 1943.) History of Europe from Roman times to the opening of the sixteenth century.

EM 242. A Survey of Ancient History

(C) (M. L. W. Laistner, 1929.) An introductory course covering the period from the Stone Age to the death of Constantine.

EM 244. The People and Politics of Latin America—Volumes 1 and 2

(C) (M. W. Williams, 1938.) A history of the Latin-American people with emphasis upon the constructive developments and the arts of peace rather than quarrels and wars.

**EM 246. *Civilization Past and Present—*
Volumes 1 and 2**

(C) (Wallbank and Taylor, 1944.) A survey of European cultures, with integrated discussions of the civilizations of the U. S. and most other countries of the world.

EM 248. *A History of Russia*

(C) (B. Pares, 1937.) History of the Russian people from prehistoric times to the present.

EM 250. *A History of the Far East in Modern Times*

(C) (Harold M. Vinacke, 1941.) History of China, Japan, and Korea in modern times.

EM 252. *Essentials of American Government*

(C) (Ogg and Ray, 1943.) Foundations of national, State, and local governments in the United States.

**EM 254. *Governments of Continental Europe—*
Volumes 1 and 2**

(C) (Shotwell, Gooch, Loewenstein, Zurcher, Florinsky, Herlitz, and Wuorinen, 1940.) Functions and characteristics of governments in Europe.

**EM 270. *American Political and Social History—*
Volumes 1 and 2**

(C) (H. U. Faulkner, 1943.) Political and social history of America from colonial civilization to 1943.

LITERACY TRAINING

EM 160. *Meet Private Pete, A Soldier's Reader*

A story and pictures to teach men to read.

****EM 161. *Learning to Read***

A practice book to be used with EM 160.

EM 162. *Instructor's Guide and Lesson Plans for Literacy Training

(A set of 80 flash cards accompanies each instructor's manual.)

EM 163. *Arithmetic for Everyday Life*

(Text and Workbook.) The most elementary principles of arithmetic for the beginner.

MATHEMATICS

EM 315. *College Algebra*

(C) (W. L. Hart, 1938.) Mathematical induction, theory of equations, logarithms, mathematics of investment, probability, determinants, partial fractions, and infinite series.

EM 318. *Plane and Spherical Trigonometry with Tables*

(C) (Kells, Kern, and Bland, 1940.) Trigonometric functions, their relations and definitions; solutions of right and oblique triangles in a plane and on a sphere; logarithms and the slide rule.

EM 321. *Elements of Analytic Geometry*

(C) (C. E. Love, 1940.) Cartesian and polar coordinates; the straight line, conic sections, and algebraic curves; tangents and normals; parametric equations; coordinates in space and surfaces.

EM 324. *Elements of the Differential and Integral Calculus*

(C) (Granville, Smith, and Longley, 1941.) Rules for differentiation and integration; applications of differential and integral calculus in the field of engineering.

EM 325. *Answers to those Problems not Answered in Elements of Differential and Integral Calculus

(C)
EM 327. *An Introduction to Statistical Analysis*

(C) (C. H. Richardson, 1944.) Instruction in the collection, organization, analysis, and interpretation of masses of numerical facts.

EM 333. *The Mathematics of Investment*

(C) (W. L. Hart, 1929.) An elementary course in the theory and application of annuities certain, and the mathematical aspects of life insurance.

EM 906. *A Course in the Slide Rule and Logarithms*

(HS) (E. J. Hills, 1943.) Information on how to use the scales on standard slide rules and how to use tables of logarithms.

EM 970. *Mathematics for Technical and Vocational Schools*

(HS) (Slade and Margolis, 1936.) Methods of solution of mathematical problems occurring in technical and trade work.

EM 971. *Machine Shop Mathematics*

(HS) (A. Axelrod, 1942.) The use of fundamental mathematical facts and procedures in the machine trade industry.

EM 972. *Mathematics Essential to Electricity and Radio*

(HS) (Cooke and Orleans, 1943.) The principles of algebra and trigonometry necessary in and applied to electricity and radio.

EM 973. *Carpentry Mathematics*

(HS) (Wilson and Rogers, 1930.) Practical application of mathematics to the carpentry trade.

MUSIC AND ART

EM 601. *Harmony*

(C) (W. Piston, 1944.) The harmonic common practices of composers of the eighteenth and nineteenth centuries.

EM 602. *A History of Music*

(C) (T. M. Finney, 1935.) Chronological growth and development of music from ancient times to the present.

EM 603. *Discovering Music*

(C) (McKinney and Anderson, 1943.) A discussion of music from the listener's standpoint with illustrations from the works of various composers.

EM 610. *Art Through the Ages—Volumes 1 and 2*

(C) (H. Gardner, 1936.) Development of architecture, painting, sculpture, and related arts.

EM 959. *Commercial Art*

(HS) (C. E. Wallace, 1939.) Drawing, design, and lettering applied to commercial art.

SCIENCE AND ENGINEERING

EM 228. *Elements of Geography—Volumes 1 and 2*

(C) (Finch and Trewartha, 1944.) The major elements of physical and cultural geography.

EM 234. *The Earth and the State*

(C) (D. Whittlesey, 1943.) The differentiation of political phenomena from place to place over the earth.

EM 286. *Elements of Healthful Living*

(C) (H. S. Diehl, 1942.) Personal and community health and health problems.

**EM 287. *Personal and Community Health—Study Guide to EM 286*

(C)

EM 427. *Elementary Meteorology*

(HS) (Finch, Trewartha, Shearer, and Caudle, 1943.) The earth and its planetary relations, temperature, winds, storms, climates, and weather applications to aviation.

EM 428. *Exploring Biology*

(HS) (E. T. Smith, 1943.) Introduction to the field of biology, with emphasis on man and his relations to the world around him.

*EM 429. *Teacher's Key to Tests and Conclusions for Exploring Biology*

(HS)

EM 431. *The Physical Sciences*

(HS) (Eby, Waugh, Welch, and Buckingham, 1943.) An introduction to astronomy, geology, meteorology, physics, and chemistry.

*EM 432. *Teacher's Manual and Key for the Physical Sciences*

(HS)

EM 442. *Foundations of Biology—Volumes 1 and 2*

(C) (L. L. Woodruff, 1941.) The fundamental principles of biology illustrated by the discussion of the structure and physiology of representative animals and plants.

EM 445. *A Textbook of General Botany*

(C) (Holman and Robbins, 1939.) Survey of the field of botany, relating the subject wherever possible to agricultural practices and problems.

EM 448. *Animal Biology—Volumes 1 and 2*

(C) (M. F. Guyer, 1941.) The basic principles of biology based on a survey of animal types with frequent application to human structures, functions, and problems.

EM 451. *Introductory College Chemistry*

(C) (H. N. Holmes, 1939.) Basic principles of chemistry, the atomic theory, composition and changes in composition of chemical substances, their properties and energy relations.

EM 454. *The Chemistry of Organic Compounds*

(C) (J. B. Conant, 1939.) Fundamental principles of organic chemistry, methods of determining structure and methods of synthesis, the many synthetic coal tar products.

EM 457. *Elementary Quantitative Analysis*

(C) (Willard and Furman, 1940.) Theory and practice of the detection and quantitative estimation of substances present in compounds and mixtures.

EM 460. *Outlines of Physical Chemistry*

(C) (Getman and Daniels, 1943.) The understanding and use of the laws of chemistry and physics.

EM 463. *Outlines of History Geology*

(C) (Schuchert and Dunbar, 1941.) General survey of the history of the Earth.

EM 464. Outlines of Physical Geology
(C) (Longwell, Knopf, and Flint, 1941.) The geological processes as agents of change and the historical nature of all geology.

EM 466. Physics—Volumes 1 and 2
(C) (Hausmann and Slack, 1939.) Mechanics, heat, electricity, and magnetism, sound, and light.

EM 469. Electricity and Magnetism
(C) (N. Gilbert, 1941.) Fundamental principles of electricity and magnetism, with applications in the field of engineering.

EM 472. The Machinery of the Body
(C) (Carlson and Johnson, 1941.) The various parts of the body and their functions.

EM 491. Fundamentals of Physical Science
(C) (Konrad B. Krauskopf, 1941.) Survey of the fields of astronomy, physics, chemistry, and geology. The scientific method and the relationship of science to modern life and thought.

EM 908. Surveying
(HS) (C. Breed, 1944.) The theory and technique of surveying, with directions for building improvised instruments with which the principles of surveying can be practiced.

EM 909. Elementary Photography
(HS) (G. G. Quarles, 1940.) Fundamentals of photography, qualities in lenses, cameras, and shutters of various types.

EM 912. Blueprint Reading at Work
(HS) (Rogers and Welton, 1944.) A combination textbook and workbook with practical problems of industry, providing training in reading blueprints intelligently.

EM 960. Mechanical Drawing
(HS) (French and Svensen, 1940.) The essentials of mechanical drawing, with modern commercial practice in making working drawings.

EM 961. Engineering Drawing
(C) (T. E. French, 1941.) Basic principles of engineering drawing, with chapters on architectural and on map drawing.

TRADES

EM 957. Better Foremanship
(HS) (G. Gardiner, 1941.) Answers to the many practical questions and problems arising from a foreman's responsibility for instructing, training, and directing his men.

EM 958. Foremanship and Supervision
(HS) (F. Cushman, 1938.) Principal types of educational procedure applied to the improvement of foremanship.

EM 962. Principles and Practice of Radio Servicing

(HS) (H. J. Hicks, 1943.) Fundamental principles and their application to the various components of radio receivers.

EM 965. Machine Tool Operation—Part I
(HS) (H. D. Burghardt, 1941.) Mechanical principles applied in the construction of certain machines and tools, and in various machine operations: lathe, bench, forge.

EM 966. Machine Tool Operation—Part II
(H. D. Burghardt, 1937.) Construction and operation of drilling machine, shaper, planer, milling machine, and grinding machine.

EM 967. Industrial Electricity
(HS) (Nadon and Gelmine, 1939.) The essentials of electricity and methods of connecting, operating, and applying electrical machines and controls.

EM 968. Carpentry
(HS) (Griffith and Cox, 1935.) The essentials of carpentry, including foundations, roof frames of various shapes, exterior covering and finish, interior finish, and methods of estimating.

EM 975. Electric Wiring
(HS) (A. A. Schuhler, 1943.) A systematic study of the various branches of electrical wiring, excluding electrical construction.

EM 976. How to Design and Install Plumbing

(C) (A. J. Matthias, Jr., 1941.) A study of important facts about plumbing and plumbing problems.

EM 977. Modern Electric and Gas Refrigeration

(C) (Althouse and Turnquist, 1943.) A study of domestic and commercial applications of modern refrigeration.

EM 978. Air-Conditioning, Heating, and Ventilating

(C) (Dalzell and Hubbard, 1938.) A study of the theory of air-conditioning, and the many different methods employed for designing, applying, and installing systems and apparatus.

MISCELLANEOUS

EM 560. Latin Fundamentals
(C) (Hettich and Maitland, 1934.) A beginning course in Latin, using the direct approach to Latin syntax.

EM 945. Your Post-War Career
(C) An introduction to the postwar job scene.

B. Language and Radio Code Materials for Group Instruction †

1. *Basic Courses, Languages (EM 500 series).* A basic language course consists of twenty-four double-faced 12-inch recordings, with accompanying manuals, designed for group instruction. Individuals may, however, secure basic language manuals, without accompanying records, if the application states that the services of a native speaker are available.

LIST OF BASIC LANGUAGE MATERIALS

EM 500. Spoken French, Basic Course—Units 1-12

Direct method of learning to speak French, for those who know no French.

EM 501. Spoken French, Basic Course—Units 13-30

A continuation of EM 500, with situations a bit more complex.

**EM 502. Manuel Du Guide*

(For use with EM 500 and EM 501.)

EM 503. Spoken Italian, Basic Course—Units 1-12

Direct method of learning to speak Italian, for those who know no Italian.

EM 504. Spoken Italian, Basic Course—Units 13-30.

A continuation of EM 503, with more complex and less frequently encountered situations.

**EM 505. Istruzioni Per La Guida.*

(For use with EM 503 and 504.)

EM 506. Spoken Chinese, Basic Course—Units 1-12

Direct method instruction in the speaking of the Chinese language, specifically North Chinese.

EM 507. Spoken Chinese, Basic Course—Units 13-30.

Continuation of EM 506.

EM 509. Spoken Spanish, Basic Course—Units 1-12.

Direct method instruction in speaking Spanish.

EM 512. Spoken Portuguese, Basic Course—Units 1-12

Direct method instruction in speaking Portuguese.

EM 515. Spoken Turkish, Basic Course—Units 1-12

A basic study of everyday Turkish.

EM 518. Spoken German, Basic Course—Units 1-12

Direct method instruction in speaking German.

EM 519. Spoken German, Basic Course—Units 13-30

A continuation of EM 518.

EM 521. Spoken Hungarian, Basic Course—Units 1-12

An introduction to spoken Hungarian containing all the essential grammatical materials for learning to speak everyday Hungarian.

EM 529. Spoken Dutch, Basic Course—Units 1-12

Direct method of learning to speak Dutch, for those who know no Dutch.

EM 530. Spoken Dutch, Basic Course—Units 13-30

A continuation of EM 529.

EM 532. Spoken Norwegian, Basic Course—Units 1-12

A general introduction to the Norwegian language.

*Guide for the native speaker. A copy will be furnished with individual enrollments.

Army organizations may requisition (WD AGO Form 445) Basic Course Language Manuals and records through military channels from USAFI. Organization commanders requisitioning these materials must indicate the number of men in the group, and the circumstances which make the course desirable.

Navy organization not supplied by an Educational Services Officer may obtain these materials by official request from the Commanding Officer to the Educational Services Section, Training, Bureau of Naval Personnel, Washington 25, D. C. This request should contain names of prospective students, together with the name of the officer who will accept custody of the phonograph records.

†Replaces pages 97-99, USAFI Catalog, Second Edition.

2. *Basic Radio Code Kit* (Em 406). The basic radio code kit is for group instruction only. It may be requisitioned by Army Organizations in the same manner as the basic course language materials (see par. 1).

C. GI Roundtable Manuals ¹

GI Roundtable manuals are intended for two uses: (1) for reference by officers or enlisted personnel who conduct off-duty discussions, and (2) for general reading by military personnel of all ranks. In order that these manuals may receive the widest possible use, copies may be placed in War Information Centers, post libraries, service club reading rooms, company day rooms, hospital wards or other military information or recreation centers for reading by military personnel.

Introductory copies of each manual are automatically supplied to information-education officers in the United States. Army organizations may requisition additional copies from USAFI for the purpose and in the quantities authorized in paragraph 3c, section IV, Circular No. 311, War Department, 1944 and in paragraph 2, section IV, Circular No. 59, War Department, 1945.

GI ROUNDTABLE MANUALS

EM No.	Title
1	Guide for Discussion Leaders.
2	What Is Propaganda?
10	What Shall Be Done About Germany After the War?
11	What Shall Be Done With the War Criminals?
12	Can We Prevent Future Wars?
13	How Shall Lend-Lease Accounts Be Settled?
14	Is the Good Neighbor Policy a Success?
20	What Has Alaska To Offer Postwar Pioneers?
22	Will There Be Work For All?
23	Why Co-ops? What Are They? How Do They Work?
24	What Lies Ahead for the Philippines?
² 30	Can War Marriages Be Made To Work?
31	Do You Want Your Wife To Work After the War?
32	Shall I Build a House After the War?
33	What Will Your Town Be Like?
34	Shall I Go Back To School?
35	Shall I Take Up Farming?
36	Does It Pay To Borrow?
40	Will the French Republic Live Again?
41	Our British Ally.
42	Our Chinese Ally.
43	The Balkans—Many Peoples, Many Problems.
44	Australia: Our Neighbor "Down Under."
45	What Future for the Islands of the Pacific?
46	Our Russian Ally.
90	GI Radio Roundtable.

¹ Listing of GI Roundtable Manuals was not made in USAFI Catalog, Second Edition, or Information Bulletin Number 1.

² For distribution only within continental United States.

*High School and College Credit**

A. USAFI Form 47 (Revised Sep. 1944) (Application for Educational Achievement)

Members of the Armed Forces on active duty interested in seeking credit at civilian schools for basic or recruit training, for courses completed at service schools, or for other educational experience while in the service, should secure and fill out completely USAFI Form 47 (Application for Credit for Educational Achievement). This application may be obtained from the Information-Education Officer, the Educational Services Officer, the Marine Corps Special Services Officer, or by writing to the Institute.

USAFI Form 47 must be sent direct to the civilian school. The Institute does not grant or recommend credit for in-service training and experiences. Granting of credit is a function of the civilian educational institution.

Veterans of World War II no longer on active duty may apply for school or college credit by writing direct to the school or college of their choice, and by inclosing with their letter a certified copy of WD AGO Form 100, (Separation Qualification Record); or Notice of Separation from the U. S. Naval Service, NavPers 553; or Notice of Separation from the U. S. Naval Service—Coast Guard, 553; or U. S. M. C. Report of Separation, NAVMC 78-PD, or by requesting a transcript of in-service training from the Special Services Branch, Headquarters U. S. M. C., Washington 25, D. C. In the case of naval commissioned or warrant officers, the Officer's Qualification Record Jacket (NavPers 305), a certified copy thereof, or a statement from the Bureau of Naval Personnel covering the data desired should be submitted to the school, college, or employer.

B. USAFI Examinations

If you use USAFI Form 47 you may be asked to take the USAFI General Educational Development Examinations or one or more of the USAFI Subject Examinations. General Educational Development Examinations, on both the high school and college level, are designed to show your general level of educational achievement. Subject examinations measure your ability in a given subject or subject field.

You may not wish to apply for high school or college credit, but you may wish to take the General Educational Development and Subject Examinations for your own information. If so, make application to the Institute on USAFI Form 68, (Application for Institute Test or Examination).

*Replaces pages 19-21 USAFI Catalog, Second Edition.