Manning's School
Beckford Street Savanna La Mar
Westmoreland

INDUSTRIAL TECHNOLOGY & VISUAL ARTS DEPARTMENT PROFILE

NUMBER OF TEACHERS IN THE DEPARTMENT
Seven (7)
NUMBER OF LABORATORY ASSISTANT IN THE DEPARTMENT
One (1)
SUBJECTS OFFERED AND LEVELS
- Visual Arts (1st to 6th Forms) - Industrial Technology Option A – Electrical and Electronic Technology(3rd to 6th Forms) - Industrial Technology Option B –Mechanical Engineering Technology (3rd to 5th Forms) - Industrial Technology Option C - Building and Furniture Technology (3rd to 5th Form) - Technical Drawing (3rd to 5th Forms) : 4th & 5th forms does AutoCAD

TABLE BELOW SHOWING THE PERCENTAGE (%) PASS RATES IN THE VARIOUS SUBJECT AREAS AT BOTH THE CSEC AND CAPE LEVELS FOR THE PAST FIVE (5) YEARS

SUBJECTS	2017		2018		2019		2020		2021	
	CSEC	CAPE	CSEC	CAPE	CSEC	CAPE	CSEC	CAPE	CSEC	CAPE
Visual Arts	92		78		100		68		100	
Visual Arts - Digital Media		100 -		- 100		- -		- 100		25 -
Industrial Tech Electrical	84	100	100	- 100	92	100 100	47	- 100	87.5	
Industrial Tech Mechanical	95		95		100		84		85.71	
Industrial Tech Building	89		100		100		100		100	
TD	83		97		94		86		100	

*First CAPE values are for Unit 1 and the second are for Unit 2
**No data found

CURRICULUM FOR EACH SUBJECT AREA

INDUSTRIAL TECHNOLOGY OPTION C - BUILDING AND FURNITURE TECHNOLOGY

3RD FORM	4TH FORM	5TH FORM
INTRODUCTION TO CONSTRUCTION CAREERS ● Definition of career ● Definition of career path ● General jobs and careers in the building and construction trades **GENERAL HEALTH AND PROCEDURES** ● General health and safety procedures and requirements ● Appropriate health and safety equipment, gear, tools, accessories & materials ● First Aid ● Safe and healthy working environment ● Accident reports ● Maintenance of common hand tools **EXPLORING RESOURCE** ● What are resources ● How important are resources to everyday life ● Classification of Resource o Human ● Skilled. semi-skilled, ● unskilled, professional ● The importance of human ● resources ● Identifying and working ● with human resources o Non-human ● Renewable resources ● Non-renewable re ● sources ● Resource conservation **SELECTING AND WORKING WITH RESOURCES** The properties, origin, classifications and use of : - Wood - Metals - Plastics - Aggregates (stone, sand, gravel, limestone) - Smart Materials - Composites	**CORE. 1. SECTION 1: FUNDAMENTALS OF INDUSTRY** ● Sectors and their roles ● Organisational structure ● Career paths and qualifications ● Codes and standards ● Occupational Health and Safety Standards ● Electrical installation and electronics standards ● Engineering production ● Building Construction ● Occupational health, safety and welfare standards ● Impact of industries on the Caribbean **CORE. 2. SECTION 2: DESIGN PRINCIPLES AND PROCESSES** ● The Design Principles ● The Design Elements ● The Design Process ● Factors that determine the appropriateness of a design ● Use the principles, elements and processes of design **CORE. 3. SECTION 3: INFORMATION COMMUNICATION AND GRAPHIC TECHNOLOGIES** ● Uses of computers in industry ● Using the operating principles of a computer ● Using communication devices to access and exchange information ● Applying graphics communication techniques ● Performing simple tasks using design soft wares ● Modern trends in Engineering technologies **SECTION 1: THE NATURAL AND BUILT ENVIRONMENT** ● Components of the natural and built environment ● The components of the built environment ● Impact of environmental pollution on the natural and built environment ● The influence of other cultures on Caribbean building styles.	**SECTION 5: BUILDING TECHNOLOGY (CONT'D)** ● Constructing floors ● Constructing doors ● Constructing windows ● Constructing a simple stair case ● Basic plumbing and related services **SECTION 6: FURNITURE TECHNOLOGY** ● Features of furniture designs ● Basic furniture manufacturing - Integrating the use of the following materials in furniture manufacturing projects; - Using furniture making tools; - Using furniture equipment - Production processes - Furniture Manufacturing **SCHOOL BASED ASSESSMENT FURNITURE MAKING PRACTICAL**

	● Principles of the building construction industry **SECTION 2: SITE WORK OPERATIONS** ● Factors to bear in mind when choosing a building site ● Preparing for site work operations ● Methods of clearing a building site ● Purposes of hoarding ● Laying out simple buildings/structures ● Preparing an excavation **SECTION 3*:* BASIC ARCHITECTURAL DRAWINGS** ● Preparing detailed drawings ● Preparing sectional views ● Reading and interpreting architectural drawings **SECTION 4: TIMBER TECHNOLOGY** ● Classification of trees ● Methods of processing timber ● Methods of seasoning wood ● Timber defects **SECTION 5: BUILDING TECHNOLOGY** ● Production of common building construction materials ● Uses of construction materials ● Building tools and equipment ● Building construction operations - Preparing mortar - Preparing concrete ● Constructing a concrete foundation ● Constructing formwork ● Constructing lintels and beams ● Constructing walls ● Performing steel-fixing operations **SCHOOL BASED ASSESSMENT** **CONSTRUCTION PRACTICAL**	

INDUSTRIAL TECHNOLOGY OPTION B –MECHANICAL ENGINEERING TECHNOLOGY

3RD FORM	4TH FORM	5TH FORM
GENERAL OHS PROCEDURES **PRODUCTION OF IRON** The blast furnace Conversion of iron to steel **BENCH WORK AND HAND TOOLS** The hacksaw The Engineer's vice The ball peen hammer Files **MEASURING AND MARKING OUT TOOLS.** inside caliper outside caliper steel rule odd leg caliper combination set scriber try square center punch dot punch	**CORE. 1. SECTION 1: FUNDAMENTALS OF INDUSTRY** -1. Sectors and their roles -2. Organisational structure -4. Career paths and qualifications -5. Codes and standards -5.1 Occupational Health and Safety Standards -5.2 Electrical installation and electronics standards -5.3 Engineering production -5.4 Building Construction -6. Occupational health, safety and welfare standards -7. Impact of industries on the Caribbean **CORE. 2. SECTION 2: DESIGN PRINCIPLES AND PROCESSES** -1. The Design Principles -2. The Design Elements -3. The Design Process -4. Factors that determine the appropriateness of a design -5. Use the principles, elements and processes of design **CORE. 3. SECTION 3: INFORMATION COMMUNICATION AND GRAPHIC TECHNOLOGIES** -1. Uses of computers in industry -2. Using the operating principles of a computer -3. Using communication devices to access and exchange information -4. Applying graphics communication techniques -5. Performing simple tasks using design soft wares -6. Modern trends in Engineering technologies **SECTION 1: MATERIALS, HAND TOOLS AND PROCESSES** Methods used in the production of basic engineering materials and their uses Factors to consider in selecting engineering materials Functions of engineering hand tools	**SECTION 3: PRODUCTION ENGINEERING** Applying safe work practices, workshop and equipment maintenance techniques Processes used to shape metals Differentiating between sand casting and die-casting techniques Functions of special parts, accessories and processes Performing Sheet Metal operations Performing soldering and de-soldering operations Performing hard soldering operations Performing Welding operations Metrology Machining operations **SECTION 4: ART METAL WORK** Processes used in art metal work; Using ornamental metal to prepare basic household and commercial products Applying different finishing and decoration techniques **CSEC SBA PROJECT**

	Forces applied to solid materials Heat treatment methods Heat treat ferrous and non-ferrous materials Performing bench work operations Cutting tools and tools maintenance **SECTION 2: GRAPHIC COMMUNICATION AND DESIGN** Comparing the basic methods of graphic communication used in engineering Preparing orthographic drawings Pictorial drawings Preparing engineering drawings Reading and interpreting engineering drawings Assessing basic engineering components Design simple engineering products;	

INDUSTRIAL TECHNOLOGY OPTION A – ELECTRICAL AND ELECTRONIC TECHNOLOGY

3RD FORM	4TH FORM	5TH FORM
SECTION 1: FUNDAMENTALS OF INDUSTRY -3. Occupational levels and their functions -5. Codes and standards -5.1 Occupational Health and Safety Standards -6. Occupational health, safety and welfare standards **SECTION 1: ELECTRICAL PRINCIPLES AND MEASUREMENTS** -1. The structure of an atom -2. The electronic theory of current flow -3. Principles of static electricity -4. Basic laws of electromagnetism -5. Electrical measurement and quantities -6. Measuring instruments -7. The principle of Ohm's law -8. The principles of resistance -9. Circuit devices -DC Circuits -11. Basic circuit configurations (series and parallel circuits): 12. Energy bills **SECTION 2: ELECTRICAL AND ELECTRONIC DRAFTING** -1 and 7. Electrical and electronic drawings **SECTION 3: ELECTRICAL POWER AND MACHINES** -3. Principal sources of primary energy **SECTION 4: ELECTRICAL INSTALLATION** -8. Faults in wiring systems	**CORE. 1. SECTION 1: FUNDAMENTALS OF INDUSTRY** -1. Sectors and their roles -2. Organisational structure -4. Career paths and qualifications -5. Codes and standards -5.1 Occupational Health and Safety Standards -5.2 Electrical installation and electronics standards -5.3 Engineering production -5.4 Building Construction -6. Occupational health, safety and welfare standards -7. Impact of industries on the Caribbean **CORE. 2. SECTION 2: DESIGN PRINCIPLES AND PROCESSES** -1. The Design Principles -2. The Design Elements -3. The Design Process -4. Factors that determine the appropriateness of a design -5. Use the principles, elements and processes of design **CORE. 3. SECTION 3: INFORMATION COMMUNICATION AND GRAPHIC TECHNOLOGIES** -1. Uses of computers in industry -2. Using the operating principles of a computer -3. Using communication devices to access and exchange information -4. Applying graphics communication techniques -5. Performing simple tasks using design soft wares -6. Modern trends in Engineering technologies **SECTION 1: ELECTRICAL PRINCIPLES AND MEASUREMENTS** -2. The electronic theory of current flow -3. Principles of static electricity -4. Basic laws of electromagnetism -5. Electrical measurement and quantities -6. Measuring instruments -8. The principles of resistance -9. Circuit devices -10. AC and DC Circuits -11. Basic circuit configurations (series and parallel	**SECTION 3: ELECTRICAL POWER AND MACHINES** -1. Apparent power, true power and power factor -2. Basic sources of electrical generation and production -3. Principal sources of primary energy -4. AC and DC electrical machines -5. DC and single and three phase AC motors -6. AC generator -7. Types of transformers -8. Low voltage transformer **SECTION 5: FUNDAMENTALS OF ELECTRONICS** -1. Features and functions of basic electronic components -2. Comparing analogue and digital systems -3. The operating principles of thermoelectricity -5. Semi-conductor devices and materials -6. Rectifier and filtering circuits -7. Full and half wave rectifier circuit; -8. Basic semi-conductor devices -8.1 DIODES -8.2 TRANSISTORS 8.3 THRYSISTORS -11. Combinational logic circuits using integrated circuits -12. Types of multi-vibrators -13. Serial shift register and four bit counter circuits -14. Production and uses of electromagnetic radio and TV frequency wave **CSEC SBA PROJECT**

	circuits): -13. Electricity generating devices **SECTION 2: ELECTRICAL AND ELECTRONIC DRAFTING** -1. and 7. Electrical and electronic drawings -2. Electrical plans and connection diagrams -3. Plans for domestic and commercial circuits -4. Electrical wiring diagrams and plans -5. Schematic diagrams -6. Block and flow diagrams **SECTION 4: ELECTRICAL INSTALLATION** -1. Codes and regulations associated with wiring systems -2. Terminologies associated with wiring systems -3. Domestic and industrial installation -4. Electrical installation materials -5. Basic wiring systems -6. Electrical terminators -7. Wiring systems' tests: -8. Faults in wiring systems -9. Performing electrical installation work **SECTION 5: FUNDAMENTALS OF ELECTRONICS** -4. Solder joints -9. Basic logic gates and their truth tables -10. Circuits using truth tables and Boolean notation for a binary to decimal decoder **CSEC SBA PROJECT**	

6TH FORM	
UNIT 1: FUNDAMENTALS OF ELECTRICITY AND ELECTRONICS **MODULE 1: OCCUPATIONAL HEALTH, SAFETY AND ENVIRONMENTAL PRACTICES** -1. Effects of Electricity on the Body -2. Health and Safety Standards -3. Safety and Maintenance Standards -4. Basic First Aid -5. Environmental Issues and Concerns	

MODULE 2: ELECTRICAL AND ELECTRONIC RELATED STUDIES -1. Ethics and social responsibilities -2. Roles and responsibilities -3. Engineering Mathematics -4. Measuring instruments -5. Electrical and electronic materials -6. Properties of Materials -7. Principles of Applied Physics and Chemistry -8. Computer design and architecture: -9. Microprocessors -10. Robotics -11. Business Opportunities -12. Business Plan **MODULE 3: INTRODUCTION TO CIRCUIT TECHNOLOGY AND DEVICES** -1. Direct current (DC) theory and network theorems: -2. Electromagnetism -3. Passive Components -4. Electrostatics -5. Inductance -6. DC theory and network theorems **CSEC IA PRACTICAL**	

TECHNICAL DRAWING

3RD FORM (Traditional)	4TH FORM (AutoCAD)	5TH FORM (AutoCAD)
CAREERS IN TECHNICAL DRAWING **INSTRUMENTS, LETTERING** ● Common drawing instruments and equipment ● Alphabet of lines-(layout drawing sheet) ● Lettering **GEOMETRIC CONSTRUCTIONS** ● Bisect straight lines, arc and angles ● Characteristics of lines in drawing ● Proportional division of lines and angles **CONSTRUCTION OF POLYGONS** ● Triangles ● Quadrilaterals	**SECTION 1: FUNDAMENTALS OF TECHNICAL DRAWING** **1A: Occupational health, safety and the environment** ● Safety, health and welfare standards ● Safety, health and welfare requirements ● Safety resources ● Fires and fire-fighting equipment ● Using a fire extinguisher ● Accident, injury and emergency ● First Aid ● Getting professional help ● Hazards and hazardous substances ● Mock Drills **1B: Equipment, tools, materials, lettering, line work, dimensions and scales** ● Importance of Technical Drawing as a universal language ● International standards ● Functions of drawing equipment and materials ● Using tools and equipment ● Types of lines ● Line construction ● Lettering and dimensioning ● Scales ● Free-hand sketching ● Using CAD principles: ● The design process ● Principles and Elements of design ● Drawings Skills in the design process ● Designing building and engineering components **SECTION 2A: GEOMETRICAL CONSTRUCTION: PLANE GEOMETRY** ● Solid and plane geometry ● Plane Geometry ● Tangents ● Analytic geometry ● Path of points in simple mechanism ● Mathematical and graphical representation of areas of figures	**SECTION 3A: BUILDING DRAWING (OPTIONAL)** ● Standards ● Types of drawings used in the building industry ● Types of architectural drawings ● Standard architectural practices ● Architectural drawings ● Comparing entrepreneurship and wage employment ● Principles of entrepreneurship ● Preparing a small business plan **SECTION 3B: MECHANICAL ENGINEERING DRAWING (OPTIONAL)** ● Engineering drawing standards ● Engineering materials ● Conventional representation of standard engineering components ● Symbols of machine parts ● Welding and brazing symbols ● Engineering drawings ● Entrepreneurship and wage employment ● Principles of entrepreneurship ● Preparing a small business plan **CSEC SBA**

	● Geometric figures equal in areas to other figures ● Division of triangles and polygons ● Reducing and enlarging plane figures **SECTION 2B: GEOMETRICAL CONSTRUCTION: SOLID GEOMETRY** ● Pictorial drawings ● Producing pictorial drawings ● First and third angle projections ● Orthographic drawings of geometrical solids ● Sectional drawings ● Sectioned surfaces of geometric solids ● Determining true lengths of straight lines ● Auxiliary views ● Preparing auxiliary drawings ● Surface development ● Constructing surface developments of oblique and frustum solids ● Curves of interpenetration ● Helical spring ● Drawing orthographic views ● Preparing pictorial drawings ● Solving drawing problems **CSEC SBA**	

VISUAL ARTS

1ST FORM	2ND FORM	3RD FORM
EXPLORING DESIGN ● Designs and designers in society. ● Characteristics of design ● Inspirations for design ● The design process ● Elements and principles of design expressing ideas in pictorial or graphical forms ● Describing the contents of works of art using the elements and principles of design **THEMATIC APPROACH TO DESIGN** ● Artists and their themes in concept and outcomes. ● Themes in compositions. ● Interpreting works of art. **SOCIAL ISSUES RELATED TO DESIGN** ● Fine arts and applied arts ● Issues surrounding public and private art ● Design appropriation ● The purpose of design ● Design for public space. ● Culture and design **DESIGN INNOVATION** ● Designing and redesigning products ● Design evolution ● Evaluating design **DRAWING** ● Description and interpretation of forms and shapes. ● Artists and their works. ● Drawing media. ● Drawing as documentation ● Processes in judging drawing **PICTURE MAKING** ● Techniques and media used in picture making. ● History of selected techniques ● Interpreting works of art. ● Nature and processes of artistic expression **EXPERIENCING THREE-DIMENSION** ● Forms and function ● Objects and space	**LEARNING FROM THE MASTERS** ● A survey of local and international 20th century masters in visual arts ● Critical analysis of 20th century masterpieces ● Appropriation in Art ● Assess and compare the use of elements and principles of design in the works of local and international artist. **ART MOVEMENTS** ● Themes, media, techniques and approach to expression. ● Timeline of art movements ● Art movements that influenced the work of Jamaican artists. **MIXED MEDIA** ● Basic skills and technique in manipulating tools and media ● Approaches to mixed media. ● Caribbean artists who explore mixed media. **DRAWING** ● Drawing Techniques Developing competence in drawing, using a variety of techniques. **LIFE DRAWING** ● Explore the use of contour lines to draw the figure ● Drawing the figure to proportions ● Drawing portraits using contour lines **PRODUCT DESIGN** ● Design thinking ● Engineering for innovation ● Planning and making prototypes ● Cultural images and themes expressed in 3 dimensional forms. **GRAPHIC DESIGN (*LOGO DESIGN)*** ● Logos ● Lettering and illustration ● Impact of graphic design on society. ● Critique in graphic design **GRAPHIC DESIGN** ● Poster Design ● Basic skills and techniques in manipulating tools and media ● Introduction to Computer Aided Design (Graphic Software)	**DRAWING AS DOCUMENTATION** ● observational drawing ● drawing media and techniques ● drawings based on evidence ● line and tone drawing **COMMUNICATING THROUGH GRAPHICS** ● redesigning packages ● package design ● materials, methods and techniques used by designers. **PAINTING AND MIXED MEDIA** ● organizing composition ● colour to create mood ● painting processes ● colour schemes ● colour theories ● theories of art **CAREERS IN VISUAL ARTS** ● Relevance ● Traditional ● New ● Emerging ● Opportunities ● Portfolio ● Artist statements **DRAWING AS EXPRESSION** ● composition format ● symbols and c drawing styles and techniques ● use drawings to generate designs for work in other media ● copyright/patent **PRINT MAKING** ● printmaking techniques ● printmaking artists ● nature and value of culture in printmaking **CARTOONING** ● drawings and cartoons as social commentary ● perspective drawing ● composition ● drawing media

● Effigies and replicas ● Decorative art ● Judging form and function **PRINTMAKING** ● Experimental printmaking ● Documentary of printmaking ● Evaluating skills and techniques ● Interpretation based on techniques. ● Designing with a purpose **SURFACE DESIGN** ● Motifs and Patterns ● Cultural symbolisms ● Themes and presentations ● Decorating surfaces **GRAPHIC DESIGN** ● Lettering and illustration ● History of graphic art ● Visual Communications as cultural expressions ● Analyzing graphic design product	● History of graphic design and digital technology. ● Computer aided Design (Graphic Software) **PRINTMAKING** ● Categories in the technique of printmaking ● Creating prints using a print making technique **SURFACE DECORATION/FIBRE ARTS** ● Combining surface decoration techniques ● History and culture of weaving. ● Basic weaving techniques	

VISUAL ARTS

4TH FORM	5TH FORM	LOWER AND UPPER 6 FORM (Digital Media)
TWO-DIMENSIONAL EXPRESSIVE FORMS **DRAWING** 1. Elements and principles of Art, lines, shape, colour, texture, movement, contrast, proportion emphasis. 2. Variety of drawing techniques, for example, contour, shading stippling and crosshatching. 3. A variety of subject matter, such as, still life, human figure, geometric drawings, architectural drawings, gestures and drawings from nature. 4. Variety of media. 5. Art works of established Caribbean and international artists. **PAINTING AND MIXED-MEDIA** 1. Colour exploration, harmonies, values, contrasts. 2. Media, such as water colour, inks acrylics, pastels and crayons. 3. Textural qualities, depth and expressions. 4. Collages and other mixed media compositions. 5. Themes, including historical, cultural, folklore and fantasy. 6. Traditional and contemporary paintings and processes seen and used in the Caribbean and other cultures. **GRAPHIC AND COMMUNICATION DESIGN** 1. Manual or computer-generated lettering in a variety of lettering styles. 2. Lettering, illustrations and other visual materials in a variety of combinations to achieve desired effects. 3. Creative lettering for posters, advertisements, signboards, logos, and other visual communication material based on given topics and themes. 4. Posters, logos, signs, labels, advertisements, illustration of books, CDs, DVDs and video cassette cases, flyers,	**TWO-DIMENSIONAL EXPRESSIVE FORMS (Cont'd)** **DRAWING** 1. Elements and principles of Art, lines, shape, colour, texture, movement, contrast, proportion emphasis. 2. Variety of drawing techniques, for example, contour, shading stippling and crosshatching. 3. A variety of subject matter, such as, still life, human figure, geometric drawings, architectural drawings, gestures and drawings from nature. 4. Variety of media. 5. Art works of established Caribbean and international artists. **PAINTING AND MIXED-MEDIA** 1. Colour exploration, harmonies, values, contrasts. 2. Media, such as water colour, inks acrylics, pastels and crayons. 3. Textural qualities, depth and expressions. 4. Collages and other mixed media compositions. 5. Themes, including historical, cultural, folklore and fantasy. 6. Traditional and contemporary paintings and processes seen and used in the Caribbean and other cultures. **GRAPHIC AND COMMUNICATION DESIGN** 1. Manual or computer-generated lettering in a variety of lettering styles. 2. Lettering, illustrations and other visual materials in a variety of combinations to achieve desired effects. 3. Creative lettering for posters, advertisements, signboards, logos, and other visual communication material based on given topics and themes. 4. Posters, logos, signs, labels, advertisements, illustration of books, CDs, DVDs and video cassette cases, flyers, package designs and other visual communication materials. 5. Sequential art or cartoons on selected themes and topics.	**UNIT 1: DIGITAL MEDIA FUNDAMENTALS MODULE 1: UNDERSTANDING DIGITAL MEDIA** - Digital Media Terminologies - Evolution of Digital Media - Types of Digital Media - Caribbean Content Creation in the Context of Digital Media - Digital Media Platforms (DMP) - Opportunities and Pitfalls of Digital Media and the Internet - Intellectual Property, Patents, Copyrights - Ethical Issues Relating to Digital Media - Types of Digital Media Businesses - The Open Movement Philosophy - Digital Media Tools - Future Trends and Development **MEDIA ECOSYSTEM** - Characteristics of Digital Users - Explain the Concept of Digital Media Ecosystem - The Key Aspects of the Digital Media Value Chain (Digital Value Chain) - Characteristics of the Modern Work Environment - Challenges and Opportunities In The Digital Media Industry (Regional/Global) - Project Funding Opportunities - Skills Needed to Enhance Employability - Process of Concept Formulation - Complete Presentations **UNIT 1 MODULE 3: CREATIVE SOLUTION DESIGN** - Describe the Steps of the Creative Process - Methods of Implementing the Creative Process - Definition of the Term Ideation (as related to digital media)

package designs and other visual communication materials. 5. Sequential art or cartoons on selected themes and topics. 6. Basic computer applications, such as, scanning, importation and manipulation of images, selection and application of fonts and colour. **CSEC SBA**	6. Basic computer applications, such as, scanning, importation and manipulation of images, selection and application of fonts and colour. **CSEC SBA**	- Application of the Creative Process to Local Problems: Global Solutions - Pre-Production Skills and Techniques to Possible Solution - Digital Media Tools - Communicating in The Digital Age - Skills and Techniques Using Image, Audio and Video Manipulation **CSEC IA**