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Aviation Academic Status

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Aviation Academic Status



March 13th -17th 2016

Dan Macchiarella, Ph.D.

EMBRY-RIDDLE
Aeronautical University.
1926-2016



"Change is the law of life and those who look only to the past or present are certain to miss the future."

John F. Kennedy



Aviation Academic Status

1. A Critical Moment in Time...

Formalization of Educational Practice for a Profession...

2. Status of Collegiate Aviation Programs

Accredited

Certified

3. The Future



Critical Moment in Time - 1910

- Medical Doctor Professional Certification Poorly Defined
- Flexner Report—1910
 - *Medical Education in the United States and Canada*
 - 155 Medical Schools
 - **Loosely defined standards** for professional certification
 - **Most medical schools admonished**
 - **Several medical schools received praise** including: Harvard, Western Reserve, McGill, University of Toronto, and Johns Hopkins


Education and Practice for today's American medical profession stems from the Flexner Report and its aftermath !

Critical Moment in Time - 1938

- Civilian Pilot Training Program (CPTP) called for training 11,000 pilots during the 1939-1940 school year
- CAA contracted with 435 universities, which trained over 9,000 pilots

Civil Aeronautics Authority (CAA)

Critical Moment in Time - 2009



NATIONAL TRANSPORTATION SAFETY BOARD

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Loss of Control on Approach, Colgan Air, Inc., Operating as Continental Connection Flight 3407, Bombardier DHC 8 400, N200WQ

Probable Cause

The National Transportation Safety Board determines that the probable cause of this accident was the captain's inappropriate response to the activation of the stick shaker, which led to an aerodynamic stall from which the airplane did not recover. Contributing to the accident were (1) the flight crew's failure to monitor airspeed in relation to the rising position of the lowspeed cue, (2) the flight crew's failure to adhere to sterile cockpit procedures, (3) the captain's failure to effectively manage the flight, and (4) Colgan Air's inadequate procedures for airspeed selection and management during approaches in icing conditions.



Critical Moment in Time – 2009-2016

Public Law 111–216
111th Congress

An Act

Aug. 1, 2010
[H.R. 5900]

To amend the Internal Revenue Code of 1986 to extend the funding and expenditure authority of the Airport and Airway Trust Fund, to amend title 49, United States Code, to extend airport improvement program project grant authority and to improve airline safety, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

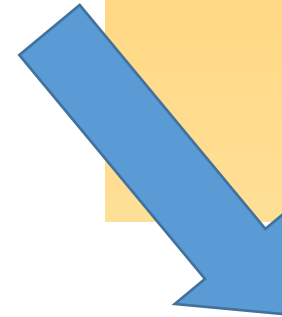
Airline Safety
and Federal
Aviation
Administration
Extension Act
of 2010.
49 USC 40101
note.

SECTION 1. SHORT TITLE.

This Act may be cited as the “Airline Safety and Federal Aviation Administration Extension Act of 2010”.

SEC. 2. TABLE OF CONTENTS.

The table of contents for this Act is as follows



U.S. Department
of Transportation
Federal Aviation
Administration

Advisory Circular

Subject: Institution of Higher Education's
Application for Authority to Certify its
Graduates for an Airline Transport
Pilot Certificate with Reduced
Aeronautical Experience

Date: 7/12/13

AC No: 61-139

Initiated by: AFS-800

Change:

Critical Moment in Time – 2009-2016

AC No: 61-139

1. PURPOSE. This advisory circular (AC) provides instructions for institutions of higher education on how to obtain authority to certify students who graduate from the institution's degree program with an aviation major and otherwise meet the requirements of Title 14 of the Code of Federal Regulations (14 CFR) part 61, § 61.160(b), (c), or (d). Graduates of an institution of higher education that has received Federal Aviation Administration (FAA) authorization to certify graduates may be eligible to apply for a restricted privileges airline transport pilot (ATP) certificate. The total flight time requirements for a restricted privileges ATP Certificate based on a degree with an aviation major are:

- 1,000 hours for a graduate who holds a bachelor's degree with an aviation major and meets the remaining requirements of § 61.160(b);
- 1,250 hours for a graduate who holds an associate's degree with an aviation major and meets the remaining requirements of § 61.160(c); and
- 1,250 hours for a graduate who holds a bachelor's degree with an aviation major and meets the remaining requirements of § 61.160(d).

“...institutions of higher education on how to obtain authority to certify students who graduate from the institution's degree program with an aviation major ...”



“...institutions of higher education...authority to certify students who graduate from the institution’s degree program with an aviation major ...”

Collegiate Aviation Programs



Status- Collegiate Aviation Programs

- Ground and Flight Training for Certificates and Ratings.
- Aerodynamics and Aircraft Performance.
- Aircraft Systems.
- Aviation Human Factors.
- Air Traffic Control (ATC) and Airspace.
- Aviation Law and Regulations.
- Aviation Weather.
- Aviation Safety.

**Necessary
Academic Areas
AC No: 61-139**



Status- Collegiate Aviation Programs

Imbue Professional Pilots with Knowledge

- **General Education**
 - Mathematics- calculus based
 - Physics- with labs
 - Communications- technical reports, public speaking
 - Business- organizational behavior, airline industry
 - Aeronautics
 - FAA certification

Regionally Accredited



Status- Collegiate Aviation Programs

Imbue Professional Pilots with Knowledge

- **Aeronautical Science Core**

- Aerodynamics
- Aircraft Performance
- Aircraft Engines - Turbines
- Instructional Design in Aviation or CFI /II
- Domestic & International Navigation
- Aircraft Systems & Components
- Flight Physiology
- Crew Resource Management
- Flight Safety
- Electronic Flight Management Systems

- **Airline Pilot Specialty**

- Aviation Legislation or Aviation Law
- Pilot Career Planning and Interviewing
- Airline Operations or Airline Dispatch Operations
- Jet Transport Systems
- Flight Technique Analysis
- Airline Management
- Airline Flight Crew Techniques and Procedures "CRJ"

Regionally Accredited and FAA Certified



Status- Collegiate Aviation and Aerospace Engineering

Number of degree programs-regionally accredited universities & colleges -U.S.A.

Professional

Pilot

187*

Aerospace/Aeronautical

Engineering

67

* 95 for BS and 92 for AS degrees

AOPA (2015, December) *Flight Training Magazine*

ABET (2016) *Aerospace Engineering*. Retrieved from <http://main.abet.org/aps/Accreditedprogramsearch.aspx>

Status- Collegiate Aviation- Program Directory

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2016 *FLIGHT TRAINING* COLLEGE AVIATION DIRECTORY

WELCOME TO THE 2016 *FLIGHT TRAINING* COLLEGE AVIATION DIRECTORY. This directory lists the colleges and universities in the United States that offer an associate's, bachelor's, or master's degree in an aviation field. We show which type of degree is offered, and in which discipline(s).

For a searchable database, check *Flight Training's* website (flighttraining.aopa.org/colleges). The database can be searched by state, and degree type.

Flight Training's College Aviation Directory is the largest, most comprehensive database available anywhere. But programs in the university environment are dynamic today. Please email flighttraining@aopa.org with any questions, comments, or updates.

—*The Editors*

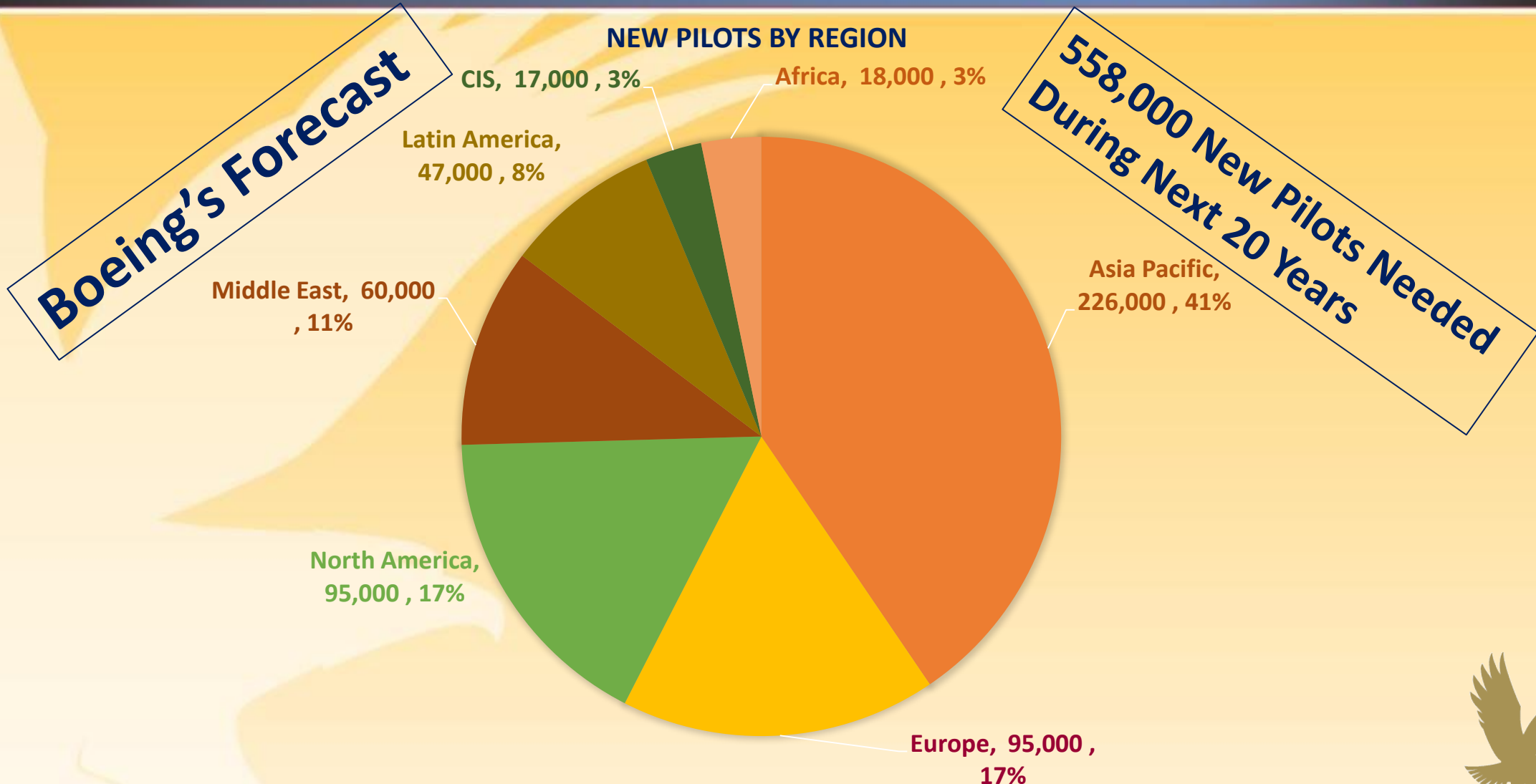
AABI: Accredited by the Aviation Accreditation Board International (www.aabi.aero)
 UAA: Member of the University Aviation Association (www.uaa.aero)

Degree Types: A Associate / B Bachelor / M Master
 Degree Areas: Professional pilot / Air traffic control / Aircraft maintenance
 Airport management / Aviation business administration / Maintenance management

SCHOOL NAME	CITY	WEBSITE	AABI	UAA	DEG TYPES	DEGREE AREAS						DIST LEARN	VA APPR
						PROF PILOT	AIR TRAFFIC CONT	AC MAINT	ARPT MGMT	AVIA BUS ADM	MAINT MGMT		



The Future – A World Needing Professional Pilots



Source: Boeing 2015 Pilot & Technician Outlook, available at <http://www.boeing.com/resources/boeingdotcom/commercial/boeing-edge/assets/brochure/edge-flight-services/pilottechnicianoutlook.pdf>



"Whosoever desires constant success
must change his conduct with the times."

Niccolo Machiavelli



Postured to Meet the Pilot Supply Need

- Collegiate Aviation is the Accredited and Certified Path to the Professional Pilot Profession in the U.S.A.
- Collegiate Aviation has Ample Geographically Dispersed Locations for Education and Training
- Collegiate Aviation has a Heritage of Rising to Meet the Nation's Professional Pilot Needs



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