The Future of Commercial Pilot Training

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Special Assistant for Program Development
Honolulu Community College
Aircraft technological advances demand new approaches to training, including user-oriented task-based syllabi, computer-based instruction, high-fidelity flight simulation, competency based performance measurement, and extensive practice in a multi-crew operating environment,
Boeing 787 Digital Cockpit
Airbus A-380 Digital Cockpit
The Space Shuttle Cockpit
Training Aircraft Technology Advances

Boeing 787

Diamond Training Aircraft with Garmin G1000 Instrumentation
Garmin Synthetic Vision Technology

Now available in light general aviation aircraft.
Alternative Paths to Licensing

- **Conventional (since 1958)**
  - CPL

- **Joint Aviation Authority (JAA)**
  - CPL
  - +MCC

- **Integrated Airline Ab Initio**
  - CPL
  - +Multi-Crew Jet Bridge
  - +Jet Type

- **MPL**
  - Core flying + Basic MCC/IR
  - +Adv MCC
  - +Jet Type
Conventional Commercial Pilot Training

Minimum 190 Pilot Flight Hours

Private Pilot Certification:
- 35 hours.
- Simple single-engine aircraft.

Commercial Pilot Certification:
- Instrument Rating: 35 hours
- Commercial Pilot: 120 hours
- Complex single-engine aircraft.

Multi-Engine Rating:
- 10 hours minimum
- Can be included in CPL 120 hours.
Integrated Ab Initio Airline Training
Public / Private Training Partnerships

SEATTLE
LONDON GATWICK
SINGAPORE
AUSTRALIA
TOKYO
CHINA
INDIA

787 full-flight simulator locations
(more locations to come)
Using Modern Glass-Cockpit Trainers
Flight Training Devices (FTDs)
Integrated Procedure Trainers (IPTs)
Full-Flight Advanced Jet Simulation
Aircraft vs. Simulator Training

**Conventional**
- 80% Aircraft
- 20% Simulation

**MPL**
- 80% Aircraft
- 20% Simulation
## Multi-Crew Pilot License (MPL) Scheme

### Minimum 240 hours of training including PF and PNF

<table>
<thead>
<tr>
<th>Phase of Training</th>
<th>Training Items</th>
<th>Flight and Simulator Flight Training Media</th>
<th>Ground Training Media</th>
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<tbody>
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<td></td>
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<td>Minimum level required</td>
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#### Core Flying Skills
- Specific basic single pilot training
  - CRM
  - VFR cross-country
  - Solo flight
  - Basic instrument principles
  - Cockpit procedures

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<tr>
<th>Airplane:</th>
<th>FSTD Type I</th>
<th>PF/PNF</th>
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#### Level 1 - Basic
- Introduction of multi-crew operations and instrument flight
  - CRM
  - PF/PNF complement
  - IFR cross-country
  - Upset recovery
  - Night flight
  - Instrument flight

<table>
<thead>
<tr>
<th>Airplane:</th>
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<th>PF/PNF</th>
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#### Level 2 - Intermediate
- Application of multi-crew operations in a high performance multi-engine turbine airplane
  - CRM
  - LOFT
  - Abnormal procedures
  - Normal procedures
  - Multi-crew Instrument flight

<table>
<thead>
<tr>
<th>Airplane:</th>
<th>FSTD Type III</th>
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</tr>
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#### Level 3 - Advanced
- Type rating training within an airline oriented environment
  - CRM
  - LOFT
  - Abnormal procedures
  - Normal procedures
  - Multi-crew Instrument flight

<table>
<thead>
<tr>
<th>Airplane:</th>
<th>FSTD Type IV</th>
<th>PF/PNF</th>
</tr>
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</table>

#### Training Media
- CBT
- E-Learning
- Part Task Trainers
- Classroom

### Threat & Error Management

70% of all aircraft accidents are caused by pilot error.
## Multi-Crew Pilot License (MPL) Scheme

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<td><strong>CORE FLYING SKILLS</strong></td>
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<tr>
<td>Specific basic single pilot training</td>
<td>CRM VFR cross-country Solo flight Basic instrument Principles of flight Cockpit procedures</td>
<td>Airplane: Single or multi-engine FSTD Type I</td>
<td>PF</td>
</tr>
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**Training Media**
- CBT
- E-Learning
- Part Task Trainers
- Classroom

**Phase of Training**
- **LEVEL 3 - ADVANCED**
  - Type rating training
  - CRM
  - Landing training
  - All Wx scenarios
  - LOFT
  - Abnormal procedures
  - Normal procedures
  - Multi-crew Instrument flight
  - FSTD Type IV
  - 12 takeoffs and landings as PF

**LEVEL 2 - INTERMEDIATE**
- Application of multi-crew operations in a high performance multi-engine turbine airplane
- CRM
- LOFT
- Abnormal procedures
- Normal procedures
- Multi-crew Instrument flight
- FSTD Type III

**LEVEL 1 - BASIC**
- Introduction of multi-crew operations and instrument flight
- CRM
- PF/PNF complement
- IFR cross-country
- Upset recovery
- Night flight
- Instrument flight
- Airplane: Single or multi-engine
- FSTD Type II

**CORE FLYING SKILLS**
- Specific basic single pilot training
- CRM VFR cross-country Solo flight Basic instrument Principles of flight Cockpit procedures
- Airplane: Single or multi-engine FSTD Type I

**PF**
## Multi-Crew Pilot License (MPL) Scheme

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**Training Items**

- **Core Flying Skills**
  - Specific basic single pilot training
  - CRM: VFR cross-country, Solo flight, Basic instrument, Principles of flight, Cockpit procedures

- **LEVEL 1 - Basic**
  - Introduction of multi-crew operations and instrument flight
  - CRM: PF/PNF complement, IFR cross-country, Upset recovery, Night flight, Instrument flight
  - Airplane: Single or multi-engine
  - FSTD Type II

- **LEVEL 2 - Intermediate**
  - Application of multi-crew operations in a high performance multi-engine turbine airplane
  - CRM: LOFT, Abnormal procedures, Normal procedures, Multi-crew, Instrument flight
  - Airplane: Single or multi-engine
  - FSTD Type III

- **Ground Training Media**
  - CBT
  - E-Learning
  - Part Task Trainers
  - Classroom
# Multi-Crew Pilot License (MPL) Scheme

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<td>Landing training All Wx scenarios LOFT Abnormal procedures Normal procedures</td>
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- **CBT**
- **E-Learning**
- **Part Task Trainers**
- **Classroom**
Competency Based

- KNOWLEDGE
- ATTITUDES
- SKILLS
- THEORY INSTRUCTION
- ACTUAL AND SIMULATED FLIGHT
A Compelling Reason to Simulate Flight

Jet Fuel Prices Soaring – Only Partly on Soaring Crude
Crack Spread Has Returned to Hurricane Levels: Far Above $5 Historical Norm

Sources: U.S. Energy Information Administration and the Air Transport Association of America
Integrated Ab Initio Airline Training

- Eliminates unnecessary Single-engine CPL training events; expands cross-country IFR flying.
- F/O Primary course provides 73 IFR hours, 79 multi-engine prop hours, and 199 total hours.
- Airline Jet Bridge course provides 80 hours multi-crew jet training.
- Airline jet Transition, conducted by training partners (Alteon and/or FlightSafety International).
Alteon First Officer Jet Bridge Training

737-600/-700/-800/-900 First Officer Jet Footprint

Transition Course - Part 1
Alteon First Officer Jet Bridge Simulator

737-600/-700/-800/-900 First Officer Jet Footprint
Transition Course - Part 2

Note:
- Day 41: Airplane Base Training, as required by JAR-FCL (not applicable to FAA).