Multi-Engine and IFR Syllabus

- Prior to starting the Multi-IFR training the student should have finished their CPL flight test and have accumulated a minimum of 50 hours PIC cross-country experience.
- The Simulator sessions and INRAT should be completed before starting training in the aircraft.
- The student s will need the **IFR Course Manual**, **Multi-Engine Training Manual** and the **Beechcraft 76 Duchess Quick Reference Handbook.**
- It is recommended that students attend the 3 Day IFR Seminar in preparation for the INRAT

IFR Simulator Syllabus

Lesson	Exercises	Completion standards/Objective	IFR Course Manual Reference
Mission #1	**U-Tracks** This lesson will be the introduction to the "U Track" pattern departing out of CZBB.	-Altitude within 200' -Headings within 20 degrees -Maintain Situation Awareness within the "U-Track" procedure	
Mission #2	**VOR/HSI Intercepts** This lesson will depart from CZBB off runway 12. The student will practice intercepting radials "to" and "from" the YVR VOR.	-Student is familiar with the Take Off Profile (climb, descents, and GUMPS) -Student maintains the Altitude within 200' -Headings within 20 degrees -Proper understanding of how to set up the VOR for radio navigation	
Mission #3	**GPS Ground Briefing** This lesson will introduce the student to GPS usage, specifically with the Gamin 430 device.	-Familiarization with the Garmin 430	
Mission #4	**Introduction to Non-Precision Approaches - VOR Approach RWY 07 CZBB** This lesson will depart from Boundary Bay (CZBB) and proceed to YVR for multiple VOR full procedure approaches.	-Student is familiar with the Take Off Profile (climb, descents, and GUMPS) -Student maintains the Altitude within 200' -Headings within 20 degrees -Proper understanding of how to set up the VOR for radio navigation	
Mission #5	**VOR Approach RWY 07 CZBB** This lesson will depart from Boundary Bay (CZBB) and proceed to YVR for review of VOR full procedure approaches.	-Student maintains the Altitude within 150' -Headings within 20 degrees -½ scale deflection on the VOR -Proper usage of the "T" and "GUMPS" sequence as per "Pro training" system	
Mission #6	**Introduction to Circling Approaches -VOR Approach RWY 07 CZBB** This lesson will depart from Boundary Bay (CCZBB) off runway 12, the student will return to CZBB for multiple VOR Approaches to circle to runway12.	-Student maintains the Altitude within 150' -Headings within 20 degrees -½ scale deflection on the VOR -Proper usage of the "T" and "GUMPS" sequence as per "Pro training" system	

Mission #7	**NDB and RMI Intercepts** This lesson will depart from Boundary Bay (CZBB), via the CZBB SID Departure to WC NDB, proceed direct to the XX NDB, and AP NDB. Wind will be incorporate in the later portions of this training session.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 15 degrees	
Mission #8	**NDB Approach RWY 07 CYXX** This lesson will depart from Abbotsford (CYXX) for multiple traditional full procedure NDB approaches.	-Altitude control within 150' -Airspeed within 10 knots -Tracking within +/- 15 degrees	
Mission #9	**NDB Approach RWY 07 CYXX** This lesson will depart from Abbotsford (CYXX), to review the NDB approach at Abbotsford, introduce GPS.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 15 degrees	
Mission #10	**VOR Holds at HUH VOR (no wind)** This lesson will depart from Abbotsford (CYXX) at night, and complete VOR holds with no wind at the HUH VOR.	-Use "Pro" system to calculate hold entry procedure, and complete hold procedure -Aircraft to be flown to flight test standards for headings, altitude and tracking.	
Mission #11	**VOR Holds at HUH VOR (with wind)** This lesson will depart from Abbotsford (CYXX) at night, and complete VOR holds with winds at the HUH VOR.	-Determine where the wind is coming from, and apply appropriate corrections.	
Mission #12	**NDB and RMI Holds** This lesson will depart from Boundary Bay (CZBB), via the CZBB SID Departure to WC NDB, Holds will be conducted at WC, initially with no wind, and then progressing into holds with wind.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 15 degrees	
Mission #13	**ILS Approach RWY 07 CYXX** This lesson will depart from Abbotsford runway 07. You will practice multiple full procedure ILS approaches to runway 07.	-Localizer and Glide Slope deflections within ½ scale deflection	
Mission #14	**ILS Approach RWY 07 CYXX** This lesson will depart from Abbotsford (CYXX) off runway 07, and will include multiple radar vectored straight- in ILS runway 07 approaches back to Abbotsford (CYXX).	-Localizer and Glide Slope deflections within ½ scale deflection -"Pro" SOP Adherence	

Mission #15	**VHF Review** This lesson will encompass a complete review of VHF radio navigation. This exercise will depart from CYXX, complete a full procedure ILS approach into CYXX with a hold at HUH VOR, followed by a VOR approach to runway 07 into CZBB.	-"Pro" SOP Adherence -Operating the simulator to IFR flight test parameters.	
Mission #16	**NDB Review** This lesson will depart from Nanaimo (CYCD), to complete a standard entry full procedure NDB approach at Nanaimo, hold at YCD NDB, and then complete a race track procedure turn approach to Nanaimo.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 15 degrees	
Mission #17	**GPS Ground Briefing** This lesson will depart from CZBB to CYXX using the Gamin trainer.	-Student is able to load FPL, fly approach, and hold with minimal assistance from the instructor.	
Mission #18	**IFR Trip Sequence #1** **CZBB - CYXX – CZBB** This lesson will depart from Boundary Bay (CZBB), on the CZBB SID departure, hold at HUH VOR, complete a full procedure ILS runway 07 at CYXX, and return to CZBB for the RNAV 30 approach.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 10 degrees, and ½ scale deflection on the ILS/ LOC -Proper usage of the WxCAAP sequence	
Mission #19	**IFR Trip Sequence #2** **CZBB – CYXX – CZBB** This lesson will review the previous, depart from Boundary Bay (CZBB), on the CZBB SID departure, hold at HUH VOR, Radar vectored S/I ILS runway 07 at CYXX, and return to CZBB for the RNAV 30 approach. Introduction to Emergencies.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 10 degrees, and ½ scale deflection on the ILS/ LOC -Proper usage of the WxCAAP sequence	
Mission #20	**IFR Trip Sequence #3** **CZBB – CYYJ – CZBB** This lesson will depart from Boundary Bay (CZBB), proceed into CYYJ via the Apass STAR arrival procedure, hold at KELKU and complete the straight in ILS 09 approach to CYYJ. Return to CZBB for the RNAV runway 30 approach into CZBB.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 15 degrees -Basic understanding of the WxCAAP sequence -Complete simulator session with minimal assistance from instructor.	
Mission #21	**IFR Trip Sequence #4** **CZBB – CYYJ – CZBB** This lesson will depart from Boundary Bay (CZBB), proceed into CYYJ via the Apass STAR arrival procedure, hold at OBSOP and complete the straight in ILS 27 approach to CYYJ. Return to CZBB for the RNAV runway 30 approach into CZBB.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 15 degrees -Basic understanding of the WxCAAP sequence -Complete simulator session with minimal assistance from instructor.	

Mission #22	**IFR Trip Sequence #5** **CYXX Hardball** This lesson will depart from Boundary Bay (CZBB) for 2 approaches into Abbotsford (CYXX), and 1 hold. Emergency procedures will be incorporated into the training session.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 10 degrees, and ½ scale deflection on the ILS/ LOC -Proper usage of the WxCAAP sequence	
Mission #23	**IFR Trip Sequence #6** **CYYJ Hardball** This lesson will depart from Boundary Bay (CZBB), proceed to Victoria (CYYJ) via the Fasbo STAR arrival, complete 1 approach into CYYJ, 1 hold, and return to CZBB for the RNAV 30 approach. Emergency procedures will be incorporated into the training session.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 10 degrees, and ½ scale deflection on the ILS/ LOC -Proper usage of the WxCAAP sequence	
Mission #24	**IFR Trip Sequence #7** **CYXX or CYYJ Hardball** This lesson will depart from Boundary Bay (CZBB), proceed to Abbotdsford (CYXX) or Victoria (CYYJ), complete 1 approach and 1 hold, then return to CZBB for the RNAV 30 approach. Emergency procedures will be incorporated into the training session.	-Altitude control within 100' -Heading within 10 degrees -Tracking within +/- 10 degrees, and ½ scale deflection on the ILS/ LOC -Proper usage of the WxCAAP sequence	
Mission #25	**GPS Ground Briefing** This lesson will depart from CZBB, CYCD, and CAT4 using the Gamin trainer.	-Student is able to load FPL, fly approach, from CZBB, to CYCD, to CAT4 with minimal assistance from the instructor.	

Multi-Engine Rating

-Prior to starting the Multi-Engine Training in the aircraft the student should have completed Mission #21 of the Simulator syllabus

Lesson	Exercises	Completion standards	Completed?
G/B	**Ground Briefing 1 – Pre-Aircraft** -Overview of the Syllabus -Documents -Weight and Balance -Pre-Flight Inspection -Brief Exercises for Multi 1		Yes? No? _____ Date
1	**Multi 1** -Pre-Flight Inspection -Run-up -Basic aircraft handling -Flight at reduced airspeed -Stalls -Steep turns		Yes? No? _____ Date
2	**Multi 2** -Circuits -Possible review of Multi 1 Exercises		Yes? No? _____ Date
G/B	**Ground Briefing 2** -Multi-Engine Theory -Aircraft Systems -Brief Exercises for Multi 3		Yes? No? _____ Date
3	**Multi 3** -Review of Multi 1 and 2 -Engine failure in cruise -Single engine landing		Yes? No? _____ Date
G/B	**Ground Briefing 3** -Performance Charts -Weight and Balance -Brief Exercises for Multi 4		Yes? No? _____ Date
4	**Multi 4** -Review Multi 1-3 -Single engine overshoot -Pilot initiated shutdown -Emergencies		Yes? No? _____ Date
G/B	**Ground Briefing 4** -Review G/B 1-3 -Brief all flight test exercises		Yes? No? _____ Date
5	**Multi 5** -Review all Multi-Engine Flight Test exercises (if necessary, repeat Multi 5 until the student has reached Flight Test Standards)		Yes? No? _____ Date
G/B	**Ground Briefing 5 - Pre-Multi Ride** -Simulated Multi-Engine Ground Test		Yes? No? _____ Date

6	**Multi 6 - Pre-Multi Ride** -Simulated Multi-Engine Flight Test		Yes? No? _____ Date
7	**Multi 7 – Multi-Engine Flight Test**		Yes? No? _____ Date

Instrument Rating

- Prior to starting the Instrument Rating in the aircraft the student should have **completed the Multi-Engine flight test** and **finished the simulator sessions #22 through #25**
- By this time the student should have **completed a total of 50 hours PIC cross-country** experience
- The student should have completed sufficient instrument training to **reach 40 hours of instrument experience** by the end of this training (Note: the student will gain approximately 10 hours of additional instrument experience during the IFR flight training)

Lesson	Exercises	Completion standards	Completed?
G/B 1	-Review Route #1 -Brief how to file IFR Flight plans and get a slot time. -Checking the weather and NOTAMS to ensure a safe flight	The student should be familiar with the route and frequencies. It is expected that the student make competent decision to fly based on the weather and NOTAMS. They should be able to walk around and file the day of the flight.	Yes? No? _____ Date
1	**IFR 1 – (CZBB – CYXX – CZBB)** -SID 4 CZBB -Hold at HUH -ILS 07 CYXX -RNAV 30 CZBB via PENIN	This flight will stress the use of the SOP's developed in the simulator and the student should be reminded or corrected when one is missed. The communications should be handled by the student with assistance from the instructor. If the student gets lost while programming the GPS it is the instructor should assist to help with their situation awareness.	Yes? No? _____ Date
2	**IFR 2 – (CZBB – CYXX – CZBB)** -SID 4 CZBB -Straight in ILS 07 CYXX via WC -Hold at HUH -RNAV 30 CZBB via PENIN	This flight is all about staying ahead of the aircraft and utilizing the PRO SOP's to make that happen. The instructor may assist in unusual ATC requests. The approach into CZBB should be loaded VIA BLKLY then PENIN to allow the student more time to setup.	Yes? No? _____ Date
3	**IFR 3 – (CZBB – CYYJ – CZBB)** -SID 4 CZBB -Hold at HUH -V495 to YYJ -ILS/DME 09 or RNAV Z 27 CYYJ -RNAV 30 CZBB via ESVEM	The objective is to maintain flight test standard while challenge the student with emergencies and an engine failure. The student needs to maintain a strong scan while working through a checklist in IMC.	Yes? No? _____ Date
4	**IFR 4 – (CZBB – CYYJ – CZBB)** -SID 4 CZBB -Hold at YYJ, AP or RNAV Waypoint -RNAV 09 or 27 CYYJ -RNAV 30 CZBB via ESVEM **or** **IFR 4 – (CZBB – KBLI – CZBB)** -SID 4 CZBB -Hold at HUH -Vectors ILS 16 KBLI -RNAV 30 CZBB via ESVEM	The objective is to maintain flight test standard while challenge the student with emergencies and an engine failure. The student must be able to maintain a strong scan while working through a checklist in IMC.	Yes? No? _____ Date
G/B 2	**Pre 100nm** -Brief 100nm route -Brief Approaches -Brief Garmin 430	The student should be able to fly the route without any instructor assistance. The time for setup and brief of the approaches is increased so there should be no excuse for the student to get behind the aircraft. All radio calls should be handled by the student.	Yes? No? _____ Date

5	**IFR 5 – 100NM IFR-Cross-Country** -SID 4 CZBB -RNAV 29 CAT4 -RNAV 16 CYCD -RNAV 30 CZBB (circling if required) **OR** -SID 4 CZBB -RNAV 16 KORS -VECTORS ILS 16 KBLI - HOLD HUH -VECTORS ILS 07 CYXX -BLKLY RNAV 30 CZBB (circling if required)	The objective is to maintain the flight test standard and show proficiency with the Garmin 430.	Yes? No? _____ Date
6	**IFR 6 – (CZBB – KBLI – CZBB)** -SID 4 CZBB -Radar vectors ILS 16 KBLI -Hold at HUH -RNAV 30 CZBB via PENIN	The objective is to take the student out of their comfort zone and see if there performance is within standard. Emergencies should also be completed successfully.	Yes? No? _____ Date
7	**IFR 7 – (CZBB – CYXX – CZBB)** -Typical flight test route and planning questions - SID 4 CZBB -Hold at HUH -ILS 07 CYXX -Missed Approach -RNAV 30 CZBB (circling if required)	A determination must be made if the student is consistent enough to be recommend for the flight test	Yes? No? _____ Date
8	**IFR 8 – (CZBB – CYXX – CZBB)** -Typical flight test route and planning questions - SID 4 CZBB -Hold at HUH -RNAV (GNSS) 07 CYXX -Missed Approach -RNAV 30 CZBB (circling if required)	A determination must be made if the student is consistent enough to be recommend for the flight test	Yes? No? _____ Date
9	**IFR 9 – (CZBB – CYXX – CZBB)** -Typical flight test route and planning questions - SID 4 CZBB -ILS 07 CYXX -Missed Approach -Hold at HUH -RNAV 30 CZBB (circling if required)	A determination must be made if the student is consistent enough to be recommend for the flight test	Yes? No? _____ Date
10	**IFR 10 – Pre-IFR Ride**		Yes? No? _____ Date
G/B 3	**Pre-IFR Ride Ground**		Yes? No? _____ Date
11	**IFR 11 - IFR Flight Test**		Yes? No? _____ Date