

## TABLE OF CONTENTS OF VOLUME 1: STUDENT'S BOOK

Note: The contents comprise only the main activities of each Unit.

<b>UNIT 1 – Aircraft Electrical Systems I</b>	<b>17</b>
<b>Section One</b>	<b>18</b>
Reading - <i>The Role of Electrical Power Systems</i>	18
Reading Activity - Comprehension Questions	19
Word Study	19
Vocabulary Review - <i>Environment Friendly Solutions</i>	20
Listening - <i>Achieving a Career in Electrical Engineering - Part I</i>	20
<b>Section Two</b>	<b>22</b>
Reading - <i>Electrical Power Uses</i>	22
Reading Activity 1 - Comprehension Questions	24
Word Study 1	24
Listening - <i>Achieving a Career in Electrical Engineering - Part II</i>	26
<b>Section Three</b>	<b>28</b>
Speaking - <i>Aircraft Power Sources</i>	28
Writing 1 - <i>CV/Cover Letter</i>	29
The History of Aviation, Part I ( <i>The Myth of Daedalus and Icarus</i> )	32
<b>Language Study - Describing Functions/Uses</b>	<b>34</b>
<b>UNIT 2 – Aircraft Electrical Systems II</b>	<b>37</b>
<b>Section One</b>	<b>38</b>
Reading - <i>Basic Airplane Electrical System Components, a Brief Analysis - Part I</i>	39
Reading Activity 1 - Comprehension Questions	40
Word Study	41
Vocabulary Review - <i>Load-Meter and Voltage Regulator</i>	41
<b>Section Two</b>	<b>42</b>
Reading - <i>Basic Airplane Electrical System Components, a Brief Analysis - Part II</i>	42
Reading Activity 1 - Comprehension Questions	43
Word Study 1	43
Listening - <i>Transformers, Transformer-Rectifiers and Inverters</i>	45
<b>Section Three</b>	<b>47</b>
Writing - <i>Describing Electrical Devices</i>	47
Speaking - <i>Making a Presentation</i>	47
The History of Aviation, Part II ( <i>Leonardo Da Vinci and his Flying Machines</i> )	49
Language Study - <i>Prepositions</i>	51
<b>UNIT 3 – Avionics - Introduction and Principles</b>	<b>53</b>
<b>Section One</b>	<b>54</b>
Reading 1 - <i>Avionics: a Brief Introduction</i>	54
Reading Activity - Comprehension Questions	55
Word Study	55
Vocabulary Review - <i>The Development of Avionics</i>	56
<b>Section Two</b>	<b>59</b>
Reading - <i>Aircraft Communications and Instrumentation</i>	59
Reading Activity - Comprehension Questions	60
Word Study	60

Listening - <i>Avionics Issues</i>	61
<b>Section Three</b>	<b>63</b>
Speaking - <i>Functional Description</i>	63
Writing - <i>Pie Chart Description</i>	64
The History of Aviation, Part III ( <i>Aeronautical Pioneers of the 19<sup>th</sup> and Early 20<sup>th</sup> Centuries</i> )	65
Language Study - <i>Simple Present, Simple Past, Simple Present Perfect, Simple Future</i>	67
<b>UNIT 4 – Flight Instruments I</b>	<b>71</b>
<b>Section One</b>	<b>72</b>
Reading 1 - <i>Aircraft Instruments - Part I</i>	72
Reading Activity 1 - Comprehension Questions	74
Word Study	74
Vocabulary Review 1 - <i>The Cockpit</i>	75
<b>Section Two</b>	<b>80</b>
Reading - <i>Flight Instruments - Layout and Display</i>	80
Reading Activity 1 - Comprehension Questions	81
Listening - <i>Flight Instruments</i>	83
<b>Section Three</b>	<b>85</b>
Speaking - <i>Battlefields on Air</i>	85
Writing - <i>Essay</i>	85
The History of Aviation, Part IV ( <i>Aviation in the 20<sup>th</sup> Century - WWI</i> )	86
Language Study - <i>Stating Definitions</i>	88
<b>UNIT 5 – Flight Instruments II: Compass</b>	<b>91</b>
<b>Section One</b>	<b>92</b>
Reading 1 - <i>Earth's Magnetic Field</i>	92
Reading Activity 1 - Comprehension Questions	94
Word Study	94
Vocabulary Review 1 - <i>Magnetism</i>	94
<b>Section Two</b>	<b>99</b>
Reading - <i>Aircraft Magnetic Compass</i>	99
Reading Activity - Comprehension Questions	101
Word Study	101
Listening - <i>Vertigo</i>	102
<b>Section Three</b>	<b>104</b>
Speaking - <i>Battles</i>	104
Writing - <i>Quote (Opinion essay based on a quote)</i>	105
The History of Aviation, Part V ( <i>Aviation in the 20<sup>th</sup> Century - Technology and Performance Advances in Aviation's "Golden Age", 1918-1939</i> )	105
Language Study - <i>Prepositions</i>	107
<b>UNIT 6 – Navigation I</b>	<b>111</b>
<b>Section One</b>	<b>112</b>
Reading 1 - <i>Fundamental Concepts in Aeronautical Navigation</i>	112
Reading Activity - Comprehension Questions	114
Word Study 1	114
Vocabulary Review 1 - <i>Maps and Charts</i>	116
Listening - <i>VFR Flight Planning</i>	120
Reading Activity	121

<b>Section Two</b>	<b>122</b>
Reading - <i>Global Navigation Satellite Systems (GNSS)</i>	122
Reading Activity - Comprehension Questions	124
Word Study	124
Listening - <i>How the Differential GPS Works</i>	125
<b>Section Three</b>	<b>126</b>
Speaking - <i>The Qualities of a Good Fighter Pilot</i>	126
Writing - <i>Essay</i>	127
The History of Aviation, Part VI ( <i>The Air War During WWII</i> )	127
Language Study - <i>Simple Present Passive, Part I</i>	130
<b>UNIT 7 – Navigation II</b>	<b>133</b>
<b>Section One</b>	<b>134</b>
Reading 1 - <i>Radar Basics</i>	134
Reading Activity - Comprehension Questions	136
Word Study	136
<b>Section Two</b>	<b>141</b>
Reading - <i>How Secondary (Surveillance) Radar Works</i>	141
Reading Activity - Comprehension Questions	143
Word Study	143
Vocabulary Review 1 - <i>Description of an Isoecho Radar</i>	144
Listening 1 - <i>Understanding Radar</i>	147
<b>Section Three</b>	<b>150</b>
Speaking - <i>Heroes</i>	150
Writing - <i>Quote</i>	151
The History of Aviation, Part VII ( <i>The Science and Technology of WWII</i> )	151
Language Study - <i>Simple Present Passive, Part II</i>	153
<b>UNIT 8 – Avoidance Systems</b>	<b>157</b>
<b>Section One</b>	<b>158</b>
Reading 1 - <i>Traffic Collision Avoidance System: Basics</i>	158
Reading Activity - Comprehension Questions	160
Word Study 1	160
<b>Section Two</b>	<b>162</b>
Reading 1 - <i>Versions of TCAS</i>	162
Reading Activity - Comprehension Questions	164
Word Study	164
Vocabulary Review - <i>Current Implementation of TCAS</i>	169
Listening - <i>GPWS Aural Alerts</i>	170
<b>Section Three</b>	<b>171</b>
Speaking - <i>Leadership</i>	171
Writing - <i>Quote</i>	172
The History of Aviation, Part VIII ( <i>Aviation Achievements that Followed WWII</i> )	172
Language Study - <i>Zero, First and Second Conditionals</i>	174
<b>UNIT 9 – Flight Management System</b>	<b>179</b>
<b>Section One</b>	<b>180</b>
Reading - <i>Flight Management System on Commercial Aircraft</i>	180
Reading Activity 1 - Comprehension Questions	182

Word Study	182
Vocabulary Review - <i>The Development of the FMS</i>	183
<b>Section Two</b>	<b>184</b>
Reading - <i>Future Flight Management System on Commercial Aircraft</i>	184
Reading Activity 1 - Comprehension Questions	186
Word Study	186
Listening - <i>After-landing Procedure</i>	187
<b>Section Three</b>	<b>190</b>
Speaking - <i>War</i>	190
Writing - <i>Quote</i>	191
The History of Aviation, Part IX ( <i>The Cold War, 1945-1991 - Part I</i> )	191
Language Study - <i>Passive Voice: Simple Past, Present and Past Progressive, Future Simple and Future with "going to"</i>	194
<b>UNIT 10 – Auto Flight System</b>	<b>199</b>
<b>Section One</b>	<b>200</b>
Reading - <i>The Autopilot System</i>	200
Reading Activity - Comprehension Questions	202
Word Study	202
<b>Section Two</b>	<b>203</b>
Reading - <i>Autopilot Failure</i>	203
Reading Activity - Comprehension Questions	205
Word Study 1	205
Vocabulary Review - <i>Modern Autopilot Systems</i>	207
Listening - <i>Automatic Flight Control: Airbus vs. Boeing, Part I</i>	207
<b>Section Three</b>	<b>210</b>
Speaking - <i>Liberty</i>	210
Writing - <i>Quote</i>	211
The History of Aviation, Part X ( <i>The Cold War, 1945-1991 - Part II</i> )	211
Language Study - <i>Passive Voice: Present Perfect, Past Perfect, Future Perfect</i>	214
<b>UNIT 11 – Standard Air-Ground Communication</b>	<b>217</b>
<b>Section One</b>	<b>218</b>
Reading - <i>Standard Radiotelephony</i>	218
Reading Activity - Comprehension Questions	220
Word Study	220
Vocabulary Review - <i>The Importance of Air-Ground Voice Communications</i>	222
<b>Section Two</b>	<b>223</b>
Reading - <i>English Language Proficiency in Air-Ground Communication</i>	223
Reading Activity 1 - Comprehension Questions	225
Word Study	225
Listening - <i>The Basics of Radiotelephony</i>	229
<b>Section Three</b>	<b>234</b>
Speaking - <i>Cooperation</i>	234
Writing - <i>Quote</i>	235
The History of Aviation, Part XI ( <i>Aviation in the 21<sup>st</sup> Century: Trends and Challenges</i> )	235
Language Study - <i>Passive Voice: Present/Future Modals, Past Modals</i>	238

<b>UNIT 12 – Aircraft Accidents</b>	<b>243</b>
<b>Section One</b>	<b>244</b>
Reading - <i>Aircraft Accident Report - Synopsis</i>	245
Reading Activity - Comprehension Questions	246
Word Study 1	246
Vocabulary Review 1 - <i>Prevention is Better than Cure</i>	248
<b>Section Two</b>	<b>250</b>
Reading - <i>Air Accidents: The Madrid Plane Crash (2008)</i>	250
Reading Activity - Comprehension Questions	252
Word Study	252
Vocabulary Review - <i>“Miracle on the Hudson”</i>	253
Listening - <i>Human Performance</i>	254
<b>Section Three</b>	<b>255</b>
Speaking - <i>Aviation Accidents</i>	255
Writing - <i>Aircraft Accident Description</i>	256
The Development of Avionics: A Case Study ( <i>Electronic Warfare and the EA-186 Growler Electronic Attack Aircraft</i> )	256
Language Study - <i>Third and Mixed Conditional</i>	260
<b>Transcripts</b>	<b>263</b>
<b>Monolingual Glossary</b>	<b>272</b>
<b>Acronyms &amp; Abbreviations</b>	<b>302</b>
<b>References</b>	<b>304</b>
<b>Answer Key Volume 1</b>	<b>306</b>
<b>Workbook, Volume 2</b>	<b>347</b>
<i>The Table of Contents of the Workbook is available at the beginning of the volume</i>	

## TABLE OF CONTENTS OF VOLUME 2: WORKBOOK

<b>UNIT ONE: Aircraft Electrical Systems I</b>	<b>353</b>
Word Study 1 - Quiz	353
Word Study 2	354
Word Study 3	354
Reading 1 - <i>Electricity and Magnetism</i>	355
Word Study 4	356
Vocabulary Review 1 - <i>Electric Currents, Part I</i>	356
Vocabulary Review 2 - <i>Electric Currents, Part II</i>	357
Reading 2 - <i>Electric Generators</i>	357
Vocabulary Review 3 - <i>Sources of Energy for Electric Generators</i>	359
Writing - CV	359
<b>UNIT TWO: Aircraft Electrical Systems II</b>	<b>361</b>
Word Study 1 - Quiz	361
Word Study 2	362
Word Study 3	362
Reading 1 - <i>Introduction to Electrical DC Circuits</i>	369
Word Study 4	364
Vocabulary Review - <i>Series and Parallel DC Circuits</i>	365
Reading 2 - <i>Electrical Power System Components and their Functions</i>	366
Speaking - <i>Dialogue Completion</i>	367
Revision	368
<b>UNIT THREE: Avionics - Introduction and Principles</b>	<b>371</b>
Word Study 1 - Quiz	371
Word Study 2	372
Word Study 3	372
Reading 1 - <i>History of Avionics</i>	373
Vocabulary Review - <i>What is Avionics?</i>	374
Reading 2 - <i>Main Categories of Avionics</i>	375
Speaking - <i>Class Presentation</i>	377
Writing - <i>Descriptive Paragraphs</i>	378
Revision	378
<b>UNIT FOUR: Flight Instruments I</b>	<b>380</b>
Word Study 1 - Quiz	380
Word Study 2	381

Word Study 3	381
Word Study 4	382
Reading 1 - <i>Advanced Flight Instruments, Part I</i>	382
Word Study 5	384
Word Study 6	385
Vocabulary Review - <i>Erroneous Flight Instrument Information</i>	386
Reading 2 - <i>Advanced Flight Instruments, Part II</i>	387
Word Study 7	389
Word Study 8	389
Writing - <i>Paragraph Writing</i>	391
<b>UNIT FIVE: Flight Instruments II: Compass</b>	<b>392</b>
Word Study 1 - Quiz	392
Word Study 2	393
Word Study 3	393
Vocabulary Review 1 - <i>What is a Magnetic Field?</i>	394
Vocabulary Review 2 - <i>What is a Compass?</i>	395
Reading 1 - <i>Navigation Basics</i>	395
Word Study 4	397
Word Study 5	398
Vocabulary Review 3 - <i>True North / Magnetic North</i>	400
Reading 2 - <i>Amelia Earhart's Last Trip</i>	401
Speaking - <i>Class Presentation</i>	404
<b>UNIT SIX: Navigation I</b>	<b>405</b>
Word Study 1 - Quiz	405
Word Study 2	406
Word Study 3	406
Word Study 4	407
Sentence Construction	408
Reading 1 - <i>Navigation Aids</i>	409
Reading 2 - <i>Instrument Flight Rules (IFR)</i>	411
Word Study 5	413
Vocabulary Review 1 - <i>Route Planning</i>	415
Vocabulary Review 2 - <i>Aviation during WWII</i>	416
Writing - <i>Essay</i>	417
<b>UNIT SEVEN: Navigation II</b>	<b>418</b>
Word Study 1 - Quiz	418
Word Study 2	419

Word Study 3	419
Word Study 4	420
Reading 1 - <i>Crowded Skies</i>	421
Vocabulary Review - <i>Air Traffic Control Radar Beacon System (ATCRBS)</i>	423
Speaking - <i>Dialogue Completion: Descent and Approach</i>	424
Word Study 5	426
Word Study 6	427
Reading 2 - <i>A True WWII Story</i>	427
Writing - <i>Letter to the Editor</i>	430
<b>UNIT EIGHT: Avoidance Systems</b>	<b>431</b>
Word Study 1 - Quiz	431
Word Study 2	432
Word Study 3	432
Word Study 4	433
Word Study 5	434
Vocabulary Review 1 - <i>How TCAS Works</i>	435
Word Study 6	436
Vocabulary Review 2 - <i>What is GPS and How it Works</i>	437
Speaking - <i>Class Presentation</i>	438
<b>UNIT NINE: Flight Management System (FMS)</b>	<b>441</b>
Word Study 1 - Quiz	441
Word Study 2	442
Word Study 3	442
Word Study 4	443
Word Study 5	444
Reading - <i>FMS: Past, Present and Future</i>	445
Vocabulary Review - <i>The B737-300 FMS</i>	447
Speaking - <i>Class Presentation</i>	447
Writing - <i>Essay</i>	448
<b>UNIT TEN: Auto Flight System</b>	<b>449</b>
Word Study 1 - Quiz	449
Word Study 2	450
Word Study 3	450
Reading - <i>Describing an Autopilot System</i>	451
Word Study 4	453
Vocabulary Review - <i>Autopilot: Basics</i>	454



<b>UNIT ELEVEN: Standard Air-Ground Communication</b>	<b>455</b>
Word Study 1 - Quiz	455
Word Study 2	456
Word Study 3	456
Word Study 4	457
Reading - <i>Air-Ground Communication Basics</i>	458
Vocabulary Review - <i>Read-back / Hear-back</i>	460
Word Study 5	461
Word Study 6	461
Word Study 7	462
Word Study 8	462
Speaking - <i>Pilot / Controller Interaction</i>	463
Revision	463
<b>UNIT TWELVE: Aircraft Accidents</b>	<b>465</b>
Word Study 1 - Quiz	465
Word Study 2	466
Word Study 3	466
Word Study 4	467
Reading - <i>"Fewer Air Crashes in 2009, But More Fatalities"</i>	468
Vocabulary Review 1 - <i>Sleep &amp; Airline Safety: Pilot Fatigue</i>	470
Vocabulary Review 2 - <i>The Importance of Training</i>	471
Speaking - <i>Class Presentation</i>	472
Writing - <i>Flight Safety</i>	472
Revision	473
<b>Monolingual Glossary</b>	<b>477</b>
<b>Bilingual Glossary</b>	<b>506</b>
<b>Abbreviations</b>	<b>519</b>
<b>References</b>	<b>521</b>
<b>Answer Key Volume 2</b>	<b>523</b>