



UMT | IAS
Institute of Aviation Studies

Course Outline	
Institute	Institute of Aviation Studies (IAS)
Program	BS Aviation Management
Course code	AM203
Course Title	Air Navigation & Air Traffic Management
Credit Hours	03
Duration	16 Weeks
Prerequisites	AM161: Aviation Law
Resource Person	Muhammad Iqbal Khan
Counseling Hours	Monday 14:00 to 16:00 Tuesday 10:00 to 14:00 Wednesday 14:00 to 16:00 Thursday 10:00 to 16:00 Friday 10:00 to 15:00
Contact Details	Email: iqbal.khan@umt.edu.pk
Website	www.ias.umt.edu.pk

Faculty Signature _____ **Date** _____

PH/COD/HOD Signature _____ **Date** _____

Dean's Signature _____ **Date** _____

Continuous Improvement			
Major Changes	Updated By	Document No.	Date
Development of course outline	Muhammad Iqbal Khan	AM203-V1.0-F2025	15 Oct 2025

About BS Aviation Management

Mission

Education with purpose, **D**evelopment of professional skills, **G**lobal readiness, and **E**xcellence to prepare students for success in aviation.

Program Educational Objectives (PEOs)

- **PEO 1: Industry Focus**
Graduate is working in aviation industry, demonstrating competence to perform effectively in diverse professional roles while adapting to evolving industry practices.
- **PEO 2: Business Management**
Graduate is taking on professional roles in business management, applying their skills to analyze, plan, and execute organizational functions effectively.
- **PEO 3: Research and Advance Studies**
Graduate is engaging in research and advanced studies broadening their academic and professional horizons.

Program Learning Outcomes (PLOs)

- **PLO1: Analytical Thinking and Decision Making**
Ability to interpret and analyze aviation industry problems, applying critical thinking and quantitative methods to develop solutions and make effective decisions.
- **PLO2: Effective Communication Skills**
Ability to prepare, present, and convey ideas clearly through verbal and non-verbal communication effectively in professional contexts.
- **PLO3: Regulations, Compliance and Ethics**
Ability to understand and evaluate regulatory frameworks, standards and safety/security practices to ensure that the operations remain ethical and compliant with national and international regulations.
- **PLO4: Business Knowledge and Entrepreneurship**
Ability to understand the interrelated functional areas of business and use this knowledge to enhance organizational performance.
- **PLO5: Service Operations**
Ability to run, analyze, and optimize day-to-day aviation service operations and manage related infrastructure to achieve operational excellence.

- **PLO6: Technology Integration**
Ability to use digital tools, software applications, and information systems to support aviation operations and manage business processes.
- **PLO7: Corporate Social Responsibility**
Ability to understand and evaluate the impact of aviation business on economic, social, and environmental aspects of society.
- **PLO8: Organizational Behavior, Leadership and Teamwork**
Ability to evaluate organizational conflict, politics, power, and culture, while applying leadership and teamwork skills to achieve collective goals.

1. Course Description

Airports function as complex systems comparable to cities: they operate continuously, involve multiple departments, generate revenue to sustain operations and future growth, and balance the competing demands of diverse stakeholders such as passengers, airlines, concessionaires, service providers, communities, and regulatory bodies. This course provides students with a comprehensive understanding of airport planning and management, covering the organization and administration of airports, the evolution of airport systems, airfields and airspace, airport operations and safety management, terminals and ground access, security systems, and financial management. It also examines the economic, environmental, and community impacts of airports, as well as key concepts in airport planning, capacity, delay, and future industry trends. Students will develop the knowledge and skills required to plan and manage airports that are operationally efficient, economically viable, and environmentally sustainable.

2. Learning Methodology

This course includes a broad series of lessons and activities that offer a variety of modalities for maximum student engagement and content retention. Each unit contains a series of lessons that include introduction of content, virtual demonstration of that content, and repeated opportunity to practice that content, along with quizzes, class activities, assignments, presentations, projects mid-term exam and final exam.

3. Course Learning Outcomes (CLOs)			
Sr.	Upon successful completion of this course, the student will be able to...	PLO Mapping	Learning Domain & level
1	Explain the basic rules, regulations, underline concepts and latest trends of air traffic management.	3	C2
2	Apply the obtained knowledge to develop problem solving skills and analytical skills in Traffic management with utilization of practical demonstration computer-based activities.	1	C3
3	Appraise economic characteristics of air traffic management, role and task of ATM in global economy. And future directions introducing competition in the provision of air traffic management	4	C4

4. CLO – PLO Mapping								
CLOs	Program Learning Outcomes (PLOs)							
	Analytical Thinking and Decision Making	Effective Communication Skills	Regulations, Compliance and Ethics	Business Knowledge and Entrepreneurship	Service Operations	Technology Integration	Corporate Social Responsibility	Organizational Behavior, Leadership and Teamwork
	PLO1	PLO2	PLO3	PLO4	PLO5	PLO6	PLO7	PLO8
1			✓					
2	✓							
3				✓				

5. Resources

A. Text Books

- Arblaster, M. (2018). Air traffic management: Economics, regulation and governance. Elsevier Science. (Available at UMT Library)
- International Civil Aviation Organization (ICAO). (2001). Annex 11 – Air traffic services. <https://www.theairlinepilots.com/forumarchive/quickref/icao/annex11.pdf>
- International Civil Aviation Organization (ICAO). (2005). Annex 2 – Rules of the air. https://www.icao.int/Meetings/anconf12/Document%20Archive/an02_cons%5B1%5D.pdf
- International Civil Aviation Organization (ICAO). (2016). Procedures for air navigation services: Air traffic management (PANS-ATM, Doc 4444, 16th ed.). Montréal, Canada. <https://ops.group/blog/wp-content/uploads/2017/03/ICAO-Doc4444-Pans-Atm-16thEdition-2016-OPSGROUP.pdf>
- Nolan, M. S. (n.d.). Fundamentals of air traffic control (5th ed.). (Available at UMT Library)
- Oxford Aviation Academy. (n.d.). Ground training series 3: Navigation. CAE Oxford Aviation Academy. (Available at UMT Library)

B. Journal Articles

- Thales Group. (n.d.). Unmanned traffic management: Ecosystem UTM solution helps address the challenges of UAS integration into the airspace. Thales Group.
<https://www.thalesgroup.com/en/markets/aerospace/air-traffic-management/unmanned-traffic-management>
- International Airport Review. (2019, June). From digital tower to digital airport: How digital tower technology can be applied within existing towers to solve real operational challenges. International Airport Review. <https://www.internationalairportreview.com>
- International Airport Review. (2020, April). Optimizing gate management: How Seattle-Tacoma International Airport (SEA) became the most efficient U.S. airport from a gate management perspective. International Airport Review.
<https://www.internationalairportreview.com>

C. Case Studies

D. Web Links

- The History of Aviation Safety. (n.d.). Putting passengers' safety first [Video]. YouTube. <https://www.youtube.com/watch?v=teO37fLsgel>
- ATC Communications and Radio Basics. (n.d.). Talking to air traffic control [Video]. YouTube. <https://www.youtube.com/watch?v=zBWVfz6GEgk>
- Traffic Pattern. (n.d.). Understanding aerodrome traffic circuits [Video]. YouTube. https://www.youtube.com/watch?v=w_Bbs4K7L5U
- Future Air Traffic Management Concept & Evaluation Tools (FACET). (n.d.). Research on future air traffic management solutions [Video]. YouTube. <https://www.youtube.com/watch?v=DtxxJHry4wQ>
- International Civil Aviation Organization (ICAO). (n.d.). Official website. <https://www.icao.int>
- International Air Transport Association (IATA). (n.d.). Official website. <https://www.iata.org>
- Civil Aviation Authority Pakistan (CAA Pakistan). (n.d.). Official website. <https://www.caapakistan.com.pk>
- European Union Aviation Safety Agency (EASA). (n.d.). Official website. <https://www.easa.europa.eu>
- Federal Aviation Administration (FAA). (n.d.). Official website. <https://www.faa.gov>

E. Diplomas, Short Courses & Certifications

6. Schedule				
Weeks	Course Content	Reference Book	Chpt.	Ref. CLO
1	<ul style="list-style-type: none"> History of Air Traffic Control The Air Traffic Management Industry 	Book.1	1	1
2	<ul style="list-style-type: none"> Operational and Technological Background on Air Traffic Management (Part 1) 	Book.2	2	1,2
3	<ul style="list-style-type: none"> Operational and Technological Background on Air Traffic Management (Part 2) Quiz 1 	Book.2	2	1,2
4	<ul style="list-style-type: none"> Airport Air Traffic Control Communications (Procedures and Phraseology) Assignment 1 	Book.1	4	1,2,3
5	<ul style="list-style-type: none"> Air Traffic Control Procedures and Organization 	Book.1	5	1,2, 3
6	<ul style="list-style-type: none"> Control Tower Procedures Flight Planning Quiz 2 	Book.1	6	1,2,3
7	<ul style="list-style-type: none"> Governance of Air Traffic Management (An International/ National Perspective) 	Book.2	3	1,2
8	<ul style="list-style-type: none"> Assignment-2(Activity) Class activity on aerodrome control 	Book.1	4,5	1,3
9	<ul style="list-style-type: none"> Mid Term 	-		1,2,3
10	<ul style="list-style-type: none"> Form of the earth Quiz 3 	Book.3	1	1,2
11	<ul style="list-style-type: none"> Direction Assignment 3 	Book.3	2	1,2
12	<ul style="list-style-type: none"> Safety Regulation on Air Traffic Management 	Book.2	5	1,2
13	<ul style="list-style-type: none"> Economic Regulation of ATM Economic Characteristics of Air Traffic Management Quiz 4 	Book.2	6	1,2
14	<ul style="list-style-type: none"> New Entrant in to Airspace Unmanned Aircraft “Droned” and Increased Space Transportation (Part 1) Presentation (Group) 	Book.2	11	1,2,3

15	<ul style="list-style-type: none"> • New Entrant in to Airspace: Unmanned Aircraft “Droned” and Increased Space Transportation (Part 2) • Presentation (Group) 	Book.1	11	1,2,3
16	<ul style="list-style-type: none"> • Discussion on Professional Ethics • Case study with an ethical dilemma 	https://admiralcloudberg.medium.com/philosophy-of-blame-the-story-of-the-1976-zagreb-mid-air-collision-38202bfc1ad7		1,2,3
-	Final Exam	-		1,2,3

7. Evaluation Criteria and Weightages			
Assessments	Assessments	Weightages (%)	Details
Quizzes	3	10	Topic/s for each quiz will be announced.
Class Activities	3	10	Relevant to the ongoing lecture, activities, assignments and projects.
Assignments	3	10	Assignment topics will be announced.
Project/Presentation/Viva	1	10	Will be announced.
Mid Exam (Written)	1	25	Syllabus for mid-term exam will be announced in 6 th week.
Final Exam (Written)	1	35	Syllabus for final-term exam will be announced in 14 th week.

8. Course Assessments	
Assessment Details	Target CLOs
A. Activities	
Intentionally left blank. Contact resource person for this section.	
B. Assignments (Rubric is attached in Appendix B)	
Intentionally left blank. Contact resource person for this section.	
C. Project/Presentation (Rubric is attached in Appendix C)	
Intentionally left blank. Contact resource person for this section.	

9. Mapping of Assessments with CLOs													
CLOs	Assessments												
	Quiz 1	Quiz 2	Quiz 3	Class Activity 1	Class Activity 2	Class Activity 3	Assignment 1	Assignment 2	Assignment 3	Project/ Presentation	Mid Term	Final Term	
1	✓			✓			✓				✓	✓	✓
2		✓			✓			✓			✓	✓	✓
3			✓			✓			✓		✓	✓	✓

10. Class Policy

Students are required to read and understand all items outlined in the participant handbook

Class Attendance: Students need to be in class at the assigned time. After **10 minutes** past the assigned time, the students will be marked absent.

Turn-off Mobile Phone: It is unprofessional and unethical to be texting or calling during the class.

Read Emails: Participants should regularly check their university emails accounts regularly and respond accordingly. Students would be responsible if they miss a deadline because of not reading the emails.

Class Attendance Policy: A minimum of **75% attendance** is required for a participant to be eligible to sit in the final examination. International students who will be leaving for visa during semester should not use any days off except for visa trip to avoid reaching short attendance.

UMT–LMS: Participants should regularly visit the LMS and fully benefit from its capabilities. If you face any issue regarding this, contact the resource person or email your query to lms.support@umt.edu.pk for assistance.

Anti-harassment Policy: Sexual or any other harassment is prohibited and is constituted as punishable offence. All actions categorized under this policy when done physically or verbally would also be considered as harassment even by using electronic media such as computers, mobiles, internet, emails etc.

Use of Unfair Means/Honesty Policy: Any participant found using unfair means or assisting another participant during a class test/quiz, assignments or examination would be liable to disciplinary action.

Plagiarism Policy: Similarity report on every assignment either big or small will be checked and only 19% overall and 5% from a single source is allowed. Any student who attempts to bypass this will receive negative marking which will count towards the CGPA.

Use of Generative AI Policy: Use of Generative AI tools is permitted up to 5% for language enhancement only. Each report must include the following declaration:

“During the preparation of this work, the author(s) used [Gen AI Tool Name] to [purpose: e.g., improve language, format references, generate ideas]. The content has been reviewed, edited, and verified by the author(s), who take full responsibility for the submitted material.”

In case of violation, penalties include (1) First-time failure to disclose Gen AI usage: verbal warning and resubmission, (2) Full AI-generated submissions may face grade penalty and/or disciplinary hearing, (3) Repeated misconduct may lead to the suspension from academic activities for one or more semesters, revocation of degree (after investigation), or listing of student name on the HEC/UMT academic misconduct records page.

Course Withdrawal Policy: Students may withdraw from a course till the end of the 15th week of the semester. Consequently, grade ‘W’ will be awarded to the student which shall have no impact on the calculation of the GPA of the student.

Communication of Results: The results of quizzes and assignments are communicated to the participants during the semester and answer books are returned. It is the responsibility of the course instructor to keep the participants informed about his/her progress during the semester. The course instructor will inform participants about their performance in a particular assessment within a week of conducting that assessment.

Appendix A

Cover Page for Assignment

Assignment Title

Assignment Number

Student Names:

Students IDs:

Subject Name:

Section:

Name of Resource Person:

Due Date:

BS. Aviation Management

Institute of Aviation Studies (IAS)

University of Management & Technology (UMT), Lahore

Appendix B

Rubric for Assignment

Dimensions/ Weight	Does Not Meet Expectations (0-1 points)	Meets Expectations (2-3 points)	Exceeds Expectations (4-5 points)	Score
1. Understanding of Core Concepts	Demonstrates minimal understanding of airport planning and management principles; major inaccuracies present.	Demonstrates adequate understanding; some minor inaccuracies or incomplete explanations.	Demonstrates strong conceptual clarity and critical understanding with relevant and accurate examples.	/5
2. Application and Analysis	Limited or no application of course concepts; analysis lacks depth or logical flow.	Applies course concepts correctly to some extent; analysis is sound but lacks depth or innovation.	Effectively applies and analyzes airport management principles in a clear, logical, and insightful manner.	/5
3. Organization, Structure, and Clarity	Disorganized, lacks logical flow, poor formatting, and unclear writing.	Organized and generally coherent; writing is mostly clear with some structural issues.	Well-organized, coherent, and polished writing; excellent flow and logical argumentation.	/5
4. Research and Referencing	Few or no credible sources; referencing is incomplete or inconsistent; lacks citation format.	Adequate use of credible sources; mostly consistent referencing in acceptable format (APA or Harvard).	Extensive use of credible and current sources; accurate and consistent referencing throughout.	/5
5. Originality and Compliance with Academic Integrity	Similarity >19% overall or >5% from a single source; evidence of plagiarism or attempts to bypass similarity check.	Similarity ≤19% overall and ≤5% per source; properly paraphrased and referenced.	Similarity ≤10% overall; clear originality and paraphrasing; reflects authentic independent work.	/5
6. Responsible Use of Generative AI	AI use exceeds 5% or declaration missing; evidence of full AI-generated work.	AI use ≤5% for language enhancement only; declaration included.	Minimal or no AI use; clear evidence of student-authored content; declaration properly added.	/5
Total 100%	Content Criteria			30

Appendix C

Rubric for Presentation

Dimensions	Requirement	Individual Score					Average Score
		1	2	3	4	5	
Delivery	Speed, eye contact, clarity, audibility, tone	/10	/10	/10	/10	/10	
Content	Sets out relevant topics, confident with material, aids understanding	/10	/10	/10	/10	/10	
Structure	Logical, easy to follow, provides headings, each section relates to overall purpose	/10	/10	/10	/10	/10	
Use of visual aids	Uses of other visual aids, relevant to content.	/10	/10	/10	/10	/10	
Individual Viva	Answer to the questions	/10	/10	/10	/10	/10	
Total Score		/50	/50	/50	/50	/50	