Estd. 1990

UMT | IAS
Institute of Aviation Studies

Course Outline	
Institute	Institute of Aviation Studies (IAS)
Program	BS Aviation Management
Course code	AM301
Course Title	Airport Planning and Management
Credit Hours	03
Duration	16 Weeks
Prerequisites	Nil
Resource Person	Mr. Bilal Ahmad
Counseling Hours	Mon: 4 Tue: 3-4 Wed: 4 Thu: 3-4 Friday: 3
Contact Details	**Email:** bilalahmad@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	Mr. Bilal Ahmad	AM301-V1.0-F2025	30 Sep 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** how regulatory frameworks, compliance standards, and governance structures shape the planning and management of airports to ensure safe, secure, and ethical operations.	3	C1
2	**Apply** airport planning principles to design strategies that support sustainable growth while addressing environmental and community responsibilities.	7	C3
3	**Evaluate** airport infrastructure, including airside, terminal, and ground access functions, to judge its effectiveness in meeting capacity demands and delivering high-quality passenger services.	5	C5

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

- Young, S., & Wells, A. T. (2019). Airport Planning & Management, Seventh Edition. McGraw-Hill Education.

- Graham, A. (2023). Managing Airports: An International Perspective. Sixth Edition. Routledge.

- Lakshmanan, R. (2023). Fundamentals of Airport Planning: Theory and Practice. First Edition. Routledge.

- Lakshmanan, R. (2023). Fundamentals of Airport Planning: Theory and Practice (1st ed.). Routledge. https://doi.org/10.4324/9781003319948

- Brown, M. (2022). Strategic Airport Planning. First Edition. Routledge.

- Forsyth, P., Guiomard, C., & Niemeier, H.-M. (2023). Airport Economics. First Edition. Routledge.

- Horonjeff, R., McKelvey, F. X., Sproule, W. J., Young, S. (2010). Planning and Design of Airports, Fifth Edition. McGraw-Hill Education.

- Neufville, Richard de, Amedeo R. Odoni, Peter P. Belobaba, and Tom G. Reynolds. (2013). Airport Systems: Planning, Design, and Management. Second Edition. McGraw-Hill Education.

- Kazda, A., Caves, R. E. (2015). Airport Design and Operation. Emerald Group Publishing Limited.

- Ashford, N., Coutu, P., Beasley, J. R. (2012). Airport Operations, Third Edition. McGraw-Hill Education.

- Janić, M. (2011). Greening Airports: Advanced Technology and Operations. Springer.

B. Journal Articles

- Dalkıran, A., Ayar, M., Kale, U., Nagy, A., & Karakoc, T. H. (2025). A review on thematic and chronological framework of impact assessment for green airports. International Journal of Green Energy, 22(5), 889–900. https://doi.org/10.1080/15435075.2022.2045298

- Moon, S., Kim, G., Seo, H., Jun, J., & Park, E. (2025). A study on information strategy planning (ISP) for applying smart technologies to airport facilities in South Korea. Aerospace, 12(7), 595. https://doi.org/10.3390/aerospace12070595

- Baláž, M., Kováčiková, K., Vaculík, J., & Kováčiková, M. (2023). A smart airport mobile application concept and possibilities of its use for predictive modelling and analysis. Aerospace, 10(7), 588. https://doi.org/10.3390/aerospace10070588

- Bamidele, R. O., Ozturen, A., Haktanir, M., & Ogunmokun, O. A. (2023). Realizing green airport performance through green management intransigence, airport reputation, biospheric value, and eco-design. Sustainability, 15(3), 2475. https://doi.org/10.3390/su15032475

- Kacar, B., Turhan, E., Dalkiran, A., & Karakoc, T. H. (2023). Green airport building certification comparison: A practical approach for airport management. International Journal of Green Energy, 20(6), 602–615. https://doi.org/10.1080/15435075.2022.2076236

- Deng, W., Zhang, L., Zhou, X., Zhou, Y., Sun, Y., Zhu, W., … & Zhao, H. (2022). Multi-strategy particle swarm and ant colony hybrid optimization for airport taxiway planning problem. Information Sciences, 612, 576–593. https://doi.org/10.1016/j.ins.2022.08.115

- Choi, J. H. (2021). Changes in airport operating procedures and implications for airport strategies post-COVID-19. Journal of Air Transport Management, 94, 102065. https://doi.org/10.1016/j.jairtraman.2021.102065

- Peng, Q., Wan, L., Zhang, T., Wang, Z., & Tian, Y. (2021). A system dynamics prediction model of airport environmental carrying capacity: Airport development mode planning and case study. Aerospace, 8(12), 397. https://doi.org/10.3390/aerospace8120397

- Dray, L. (2020). An empirical analysis of airport capacity expansion. Journal of Air Transport Management, 87, 101850. https://doi.org/10.1016/j.jairtraman.2020.101850

- Santa, S. L. B., Ribeiro, J. M. P., Mazon, G., Schneider, J., Barcelos, R. L., & de Andrade, J. B. S. O. (2020). A Green Airport model: Proposition based on social and environmental management systems. Sustainable Cities and Society, 59, 102160. https://doi.org/10.1016/j.scs.2020.102160

- Serrano, F., & Kazda, A. (2020). The future of airports post COVID-19. Journal of Air Transport Management, 89, 101900. https://doi.org/10.1016/j.jairtraman.2020.101900

C. Case Studies

- Elmoghazy, Z. A. A., Afify, H. M. N., & Alzenifeer, B. M. (2025). Redefining airport terminal design through identity indicators: Case studies from airport terminals in Saudi Arabia. Buildings, 15(8), 1261. https://doi.org/10.3390/buildings15081261

- Maltinti, F., Flore, M., Pigozzi, F., & Coni, M. (2024). Optimizing Airport Runway Capacity and Sustainability through the Introduction of Rapid Exit Taxiways: A Case Study. Sustainability, 16(13), 5359. https://doi.org/10.3390/su16135359

D. Web Links

- WELT Documentary. (2025, March 6). Europe's Giant Construction Site: Frankfurt Airport's Massive Terminal 3 – Aviation's Next Level [Video]. YouTube. https://www.youtube.com/watch?v=AYfxJDdjPBE

- Free Documentary. (2023, October 6). World's busiest airport: Secrets of Hartsfield-Jackson Atlanta Airport [Video]. YouTube. https://www.youtube.com/watch?v=nhaEmcYw6q4

- Free Documentary. (2019, December 11). Giant airport: The 5-star airport in Munich - Giant Hubs - Episode 1 [Video]. YouTube. https://www.youtube.com/watch?v=yeclYquMdZI

- The Wall Street Journal. (2021, December 10). How Do You Design an Airfield? An Airport Planner Explains - WSJ Booked [Video]. YouTube. https://www.youtube.com/watch?v=4mkpJkdk-1A

- Delhi Airport. (2014, May 19). National Geographic Megastructures: Delhi IGI Airport – Terminal 3 [Video]. YouTube. https://www.youtube.com/watch?v=f8bygjApyM0

E. Diplomas, Short Courses & Certifications

- International Civil Aviation Organization. (n.d.). Airport Master Planning Training Course (PTP/AVM/121/AMP/040EN). ICAO Global Aviation Training. https://igat.icao.int/ated/TrainingCatalogue/Course/6247

- International Air Transport Association. (n.d.). Airport Strategic Management Diploma (DIPL-13). IATA Training. https://www.iata.org/en/training/courses/diploma_programs/airport-strategic-management-diploma/dipl-13/

- International Air Transport Association. (n.d.). Airport Master Planning Training Course (APC009VEEN02). IATA Training. https://www.iata.org/en/training/courses/airport-master-planning/apc009veen02/en/

- International Air Transport Association. (n.d.). Airport Development and Infrastructure Design Training Course (APC015VEEN02). IATA Training. https://www.iata.org/en/training/courses/airport-development-design/apc015veen02/en/

- International Air Transport Association (IATA). (n.d.). Airport Terminal Planning and Design Training Course (APC007VEEN02). https://www.iata.org/en/training/courses/airport-terminal-design/apc007veen02/en/

- Airports Council International (n.d.). Airport Management Professional Accreditation Program (AMPAP) - Executive Development Program. https://aci.aero/programs-and-services/global-training/ampap/

6. Schedule

Weeks	Course Content	Books	Chpt.	CLO
1	**Understanding Airport Structure** 1. Airport classifications 2. Function of the airport 3. Airport ownership and administration	Airport Operations	1	1
		Airport Planning and Management	1	
		Airport Design and Operations	1	
2	**Airside Infrastructure** 1. Apron, runways, taxiways 2. Airport markings and signs 3. Airport lightings	Airport Design and Operations	4,5,6,7	3
		Planning and Design of Airports	6,8	
3	**Planning and Design of Terminal Area** 1. Passenger terminal system 2. Design considerations 3. Terminal planning process 4. Apron gate system	Planning and Design of Airports	10	1,2,3
		Airport Design and Operations	12	
4	**Airport Access** 1. Access as part of the airport system 2. Access users and modal choice 3. Access interaction with passenger terminal operation 4. Access modes 5. In-town and other off-airport terminals Factors affecting access-mode choice	Airport Operations	13	2,3
		Airport Design and Operations	14	
5	**Airport Location, Demand and Forecasting** 1. Where to build? 2. Airport access 3. Demand characteristics and networks: the basics 4. Demand forecasting 5. Location, access and how to model this in forecasting	Airport Economics	2	2,3
6	**The Airport Master Plan (Part 1)** 1. Elements of the master plan 1.1. Facility requirements 1.1.1. Airside 1.1.2. In the interface between airside and	Fundamentals of Airport Planning: Theory and Practice	5	1,2,3

	city side 1.1.3. Land side 1.1.4. Either on airside or landside 1.2. Design alternatives	Airport Planning and Management	11	
7	**The Airport Master Plan (Part 2)** 1. Elements of the master plan 1.1. Financial plans 1.1.1. Economic evaluation 1.1.2. Break-even need 1.1.3. Potential airport revenue 1.1.4. Environmental planning	Airport Planning and Management	11	1,2,3
8	**Midterm Examination**	-		1,2,3
9	**The Airport Master Plan (Part 3)** 1. Elements of the master plan 1.1. Environmental planning 1.1.1. Aircraft noise 1.1.2. Air quality 1.1.3. Climate change 1.1.4. Water quality 1.1.5. Wildlife 1.1.6. Environmental legislation	Airport Systems: Planning, Design, and Management Airport Design and Operations	6 20, 21	1,2,3
10	**1. Airport Operations Manual** 1.1. Function of the airport operations manual 1.2. A format for the airport operations manual 1.3. Distribution of the manual 1.4. U.S. Example: federal aviation 1.5. Administration recommendations 1.6. On the airport certification manual 1.7. PAK examples: PCAA and PAA recommendations **2. Operational Readiness** 2.1. Aerodrome certification 2.2. Operating constraints 2.3. Operational areas 2.4. Airfield inspections 2.5. Maintaining readiness	Airport Operations	5, 17	1
11	**Airport Emergency Services** 1. Roles of the rescue and firefighting service 2. Level of protection required 3. Rescue and fire fighting vehicles 4. Airport fire stations 5. Emergency training and activity of rescue and firefighting unit 6. Runway foaming	Airport Design and Operations	19	1

	7. Post emergency operations			
12	**1. Ground Handling** 1.1. Passenger handling 1.2. Ramp handling 1.3. Aircraft ramp servicing 1.4. Ramp layout 1.5. Departure control 1.6. Division of ground handling 1.7. Responsibilities 1.8. Control of ground handling efficiency **2. Baggage Handling** 2.1. Context, history, and trends 2.2. Baggage-handling processes 2.3. Equipment, systems, and technologies 2.4. Process and system design drivers 2.5. Management and performance metrics	Airport Operations	6, 7	2
13	**1. Cargo Operations** 1.1. Cargo market 1.2. Expediting the movement 1.3. Flow through the terminal 1.4. Unit load devices (IATA 1992, 2010) 1.5. Handling within the terminal 1.6. Cargo apron operation 1.7. Facilitation (ICAO 2005) 1.8. Examples of modern cargo terminal 1.9. Design and operation 1.10. Cargo operations by the integrated carriers **2. Aerodrome Technical Services** 2.1. The scope of technical services 2.2. Safety management system 2.3. Air traffic control 2.4. Telecommunications 2.5. Meteorology 2.6. Aeronautical information	Airport Operations	10, 11	2
14	**Airport Security** 1. Airport system and its security 2. Airport system and its security 3. Detection of dangerous objects	Airport Design and Operations	13	1
15	**Greening Airports** 1. Strategies for sustainable development of airports 2. Transforming an airport into a true multimodal transport node 3. Greening airport airside 4. Greening airport landside	Greening Airports Advanced Technology and Operations	4,5,6,7	1
16	**Airport Technologies**	Web Sources		2,3

	1. Airport Collaborative Decision Making (A-CDM) 2. Self-check-in 3. Electronic bag tags 4. Digital twin technology to manage airports 5. AI powered immigration corridor		
-	**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 6th week.
Final Exam (Written)	1	35	Syllabus for final-term exam will be announced in 14th 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	