



**Department of Horticulture**

**College of Agricultural Engineering sciences**

**University of Salahaddin**

**Subject: Turf grass (Elective)**

**Course Book – (Year, 4)**

**Lecturer's name: Dr. Media Ezaddin M.Amin**

**Mrs. Dlnya Nooruldeen Othman**

**Academic Year: 2023/2024**

## Course Book

<b>1. Course name</b>	<b>Fall semester</b>
<b>2. Lecturer in charge</b>	<b>Giving lectures and seminars conducting and evaluating researches, and supervising students....etc.</b>
<b>3. Department/ College</b>	<b>Horticulture/ Agricultural Engineering sciences</b>
<b>4. Contact</b>	e-mail: <a href="mailto:media.mohammedamin@su.edu.krd">media.mohammedamin@su.edu.krd</a> e-mail:
<b>5. Time (in hours) per week</b>	<b>Theory: 2 hrs.</b>
<b>6. Office hours</b>	<b>Tuesday (11:00 am – 01:00 pm)</b>
<b>7. Course code</b>	<b>#1</b>
<b>8. Teacher's academic profile</b>	<a href="https://academics.su.edu.krd/media.mohammedamin">https://academics.su.edu.krd/media.mohammedamin</a>
<b>9. Keywords</b>	<b>Turf grass, turf grass management, fundamental of turf grass</b>
<b>10. Course overview:</b> This course provides a comprehensive understanding of turf grass species, their growth, management practices, and applications in various settings such as lawns, sports fields, and golf courses. Students will learn the principles of turf grass establishment, maintenance, and sustainability, along with factors affecting turf health and performance.	
<b>11. Course objective:</b> By the end of the course, students should be able to:	
<ul style="list-style-type: none"> <li>• Identify common turf grass species and their characteristics.</li> <li>• Describe the growth physiology and life cycle of turf grass.</li> <li>• Develop turf grass management plans for different scenarios.</li> <li>• Implement proper mowing, fertilization, irrigation, and pest management techniques.</li> <li>• Evaluate environmental and sustainable practices in turf management.</li> <li>• Understand the specific challenges and considerations for sports fields and golf courses.</li> </ul>	

- Analyse real-world turf grass problems and recommend solutions.

## **12. Student's obligation**

In a turf grass subject or course, students typically have certain obligations and responsibilities to fulfil in order to succeed and make the most out of their learning experience. These obligations may include:

- **Attendance and Participation:** Regular attendance and active participation in lectures, discussions, and practical sessions are essential for understanding the concepts, techniques, and practices related to turf grass management.
- **Study and Preparation:** Students should dedicate sufficient time to study and prepare for classes. This involves reading assigned materials, reviewing lecture notes, and engaging with study resources provided by the instructor.
- **Homework and Assignments:** Completing homework assignments, projects, and laboratory exercises is crucial for applying theoretical knowledge to practical situations. These tasks often involve analysing real-world turf grass management scenarios and developing solutions.
- **Classroom Etiquette:** Students are expected to maintain respectful behaviour in the classroom, demonstrating courtesy to both the instructor and fellow students.
- **Asking Questions:** Don't hesitate to ask questions when something is unclear. Engaging in discussions with the instructor and peers can lead to a deeper understanding of the subject matter.
- **Time Management:** Effectively managing time is important to balance the demands of the turf grass subject with other academic and personal commitments.
- **Hands-on Experience:** Depending on the course, there may be practical sessions where students get hands-on experience with turf grass maintenance, cultivation, and management techniques. Active participation in these activities can enhance understanding.

- **Staying Updated:** Turf grass management practices and technologies can evolve over time. Students should keep themselves updated with the latest research and trends in the field.
- **Collaboration:** In some cases, group projects or collaborative assignments may be assigned. Being a responsible and contributing team member is important for successful completion of such tasks.
- **Exams and Assessments:** Students should prepare thoroughly for exams and assessments, demonstrating their comprehension of both theoretical concepts and practical applications of turf grass management.
- **Professionalism:** Upholding professionalism is essential, especially if the turf grass subject is part of a program related to agriculture, horticulture, or sports field management. This includes following safety protocols, adhering to ethical guidelines, and respecting environmental concerns.
- **Feedback and Improvement:** Actively seeking and incorporating feedback from instructors can help students improve their understanding and skills in turf grass management.
- Remember that the specific obligations may vary based on the curriculum, the level of the course (undergraduate or graduate), and the teaching methods employed by the instructor. It's a good idea to review the course syllabus and guidelines provided by the instructor at the beginning of the course to understand the specific expectations for that class.

### **13. Forms of teaching**

Lectures, Data show presentation, white board, video show, Laboratory sessions, field trips and self-direct learning.

### **14. Assessment scheme**

<b>Course Exams</b>	<b>Percent marks</b>
<b>Exam 1</b>	<b>40%</b>
<b>Exam 2</b>	<b>40%</b>

<b>Report &amp; Seminar</b>	<b>10%</b>
<b>Sum</b>	<b>50%</b>
<b>Final exam</b>	<b>50%</b>
<b>Total</b>	<b>100%</b>

**15. Student learning outcome:**

1. Identify the various parts and characteristics of turf plants that facilitate the correct identification of grass species
2. Determine the correct species, mix, or blend of turf plants for a variety of use environmental or aesthetic conditions
3. Differentiate between similar, commonly used cool weather grasses used in residential, sport, and golf applications
4. Identify and describe the various methods of installation and establishment of turf
5. Examine the various tools and methods for maintenance of turf including mowing, watering, fertilizing and maintaining general health
6. Analyze a turf condition to determine if damage is evident and what the causal form of the damage including both common insects and diseases
7. Propose methods for treatment and for reducing future occurrence of the suspected causal form of damage to turf.

Student learning outcomes (SLOs) for a turf grass subject are specific statements that describe the knowledge, skills, and abilities students are expected to acquire by the end of the course. These outcomes help guide the course design, teaching methods, and assessment strategies. Here are some possible SLOs for a turf grass subject:

1. Identify Turf grass Varieties: Students should be able to identify and differentiate between various turf grass varieties commonly used in landscaping, sports fields, and golf courses, considering factors like growth habits, texture, color, and environmental adaptability.
2. Understand Turf grass Physiology: Students should demonstrate an understanding of turf grass growth processes, including photosynthesis, respiration, transpiration, and the role of nutrients in maintaining healthy turf.

3. **Soil Analysis and Management:** Students should be able to conduct basic soil tests, interpret the results, and develop soil management strategies to optimize turf grass health. This includes understanding soil texture, pH, fertility, and drainage.
4. **Implement Irrigation Practices:** Students should acquire knowledge about effective irrigation techniques, water conservation practices, and proper scheduling to promote healthy turf growth while minimizing water usage.
5. **Pest and Disease Management:** Students should be able to identify common turf grass pests, diseases, and weeds, and develop integrated pest management plans that incorporate cultural, biological, and chemical control methods.
6. **Mowing and Cultural Practices:** Students should understand the principles of mowing, including height and frequency, as well as other cultural practices like aeration, dethatching, and overseeding, to maintain turf grass health and vigor.
7. **Environmental Sustainability:** Students should recognize the importance of sustainable turf management practices, including the use of environmentally friendly fertilizers, reduced pesticide applications, and efficient water management.
8. **Design and Renovation:** Students should be capable of designing effective turf grass areas for different purposes and climates, and understand the process of renovating existing turf areas for improved performance.
9. **Sports Field Management:** For subjects focused on sports turf, students should have the ability to manage turf for athletic fields, including considerations for player safety, field aesthetics, and playability.
10. **Communication and Problem Solving:** Students should develop effective communication skills, including the ability to interact with clients, colleagues, and stakeholders, and to diagnose and solve common turf grass issues.

11. Equipment Operation and Maintenance: For subjects with a practical component, students should be able to operate and maintain turf-related equipment such as mowers, aerators, and sprayers safely and effectively.

12. Research and Application: Students should understand how to access and apply scientific research and emerging technologies in turf grass management to make informed decisions and stay updated with industry trends.

**16. Course Reading List and References:**

1.	<b>"Turf grass Management" by A.J. Turgeon</b>
	<ul style="list-style-type: none"> <li>This comprehensive textbook covers all aspects of turf grass management, from species selection to maintenance practices and pest control.</li> </ul>
2.	<b>"Fundamentals of Turf grass Management" by N. Christians and M. Agnew</b>
	<ul style="list-style-type: none"> <li>An introductory textbook that covers essential topics related to turf grass growth, cultural practices, and environmental considerations.</li> </ul>
3.	<b>"Turf grass Science and Management" by Robert Emmons</b>
	<ul style="list-style-type: none"> <li>This book provides a thorough overview of turf grass science, including anatomy, physiology, and practical management techniques.</li> </ul>
4.	<b>"Managing Turf grass Pests" by Thomas L. Watschke, Peter H. Dernoeden, and David Shetlar</b>
	<ul style="list-style-type: none"> <li>Focuses on integrated pest management strategies for controlling weeds, diseases, and insects in turf grass.</li> </ul>
5.	<b>"The Lawn Bible: How to Keep It Green, Groomed, and Growing Every Season of the Year" by David R. Mellor</b>
	<ul style="list-style-type: none"> <li>While not a textbook, this practical guide offers insights into maintaining a healthy and vibrant lawn.</li> </ul>
6.	<b>Academic Journals:</b>
	<ul style="list-style-type: none"> <li>Scientific journals such as the "Crop Science," "Journal of Turf grass Management," and "Applied Turf grass Science" can provide valuable research articles and insights.</li> </ul>

<b>17. The Topics:</b>	<b>Lecturer's name</b>
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<p><b>Lecture 1: History, scope of lawn / turf</b></p> <ul style="list-style-type: none"><li>• <b>Introduction to Turf grass Management</b><ul style="list-style-type: none"><li>• The Basic Structures of Grass Plants</li></ul></li></ul>	<p>Lecturer's name: <b>Dr. Media E. M. Amin &amp; Mrs. Dinya Nooruldeen Othman</b> ex: (2 hrs)</p> <p>ex: 07/09/2023</p>
<p><b>Lecture 2: Introduction to Turf grass Management (cont.)</b></p> <ul style="list-style-type: none"><li>• Turf Plants a. Monocots vs Dicots b.</li><li>• Turf morphology c. Warm season vs cool season plants</li><li>• Importance of turf grass in landscaping and sports fields.</li><li>• Basic turf grass terminology and definitions.</li></ul>	
<p><b>Lecture 3: Turf grass Species and Varieties:</b></p> <ul style="list-style-type: none"><li>• Common turf grass species used for lawns, sports fields, and golf courses.</li><li>• Characteristics and growth habits of different turf grass varieties.</li><li>• Selection criteria based on climate, soil type, and usage.</li></ul>	
<p><b>Lecture 4: *(Field trip to turf grass production farm in Erbil and to public park)</b></p>	
<p><b>Lecture 5: Turf grass Establishment:</b></p> <ul style="list-style-type: none"><li>• Seed selection and planting</li><li>• Sod installation</li><li>• Site preparation and soil management</li><li>• Propagation</li></ul>	
<p><b>EXAM I</b></p>	
<p><b>Lecture 6: Turf grass Growth and Physiology:</b></p> <ul style="list-style-type: none"><li>• Anatomy of a grass plant.</li><li>• Photosynthesis, respiration, and other physiological processes.</li><li>• Growth cycles and seasonal changes.</li></ul>	
<p><b>Lecture 7: Turf grass Maintenance:</b></p>	



- Fertilization schedules and nutrient management.
- Integrated pest management (IPM) for weeds, diseases, and insects.
- Cultural practices like aeration, dethatching, and topdressing.

**\*(Field trip to Erbil stadium and Golf course)**

**Lecture 8: Irrigation and Water Management:**

- Efficient irrigation techniques and systems.
- Monitoring soil moisture and water requirements.
- Water conservation strategies.

**Lecture 9: Turf grass Stress and Recovery:**

- Environmental stress factors (drought, heat, cold) and their effects.
- Strategies for turf grass recovery after stress.

**EXAM II**

**Lecture 10: Turfgrass soil properties**

- Turfgrass soil physical properties
- Sand-based construction
- Turfgrass soil chemistry

**Lecture 11: Turf grass Renovation and Repair:**

- Reseeding and overseeding techniques.
- Repairing damaged turf areas.
- Patching damaged areas.
- Strategies for repairing high-traffic zones.

**Lecture 12: Environmental Considerations:**

- Sustainable turf grass management practices.
- Environmental impacts of various turf maintenance approaches.

- Water conservation and responsible pesticide use.
- Alternatives to conventional management approaches.

**Lecture 13: Turf grass Research and Innovation:**

- Current trends and advancements in turf grass science.
- Emerging technologies and their applications.

**FINAL EXAM**

**19. Examinations:**

**1. Compositional:** In this type of exam the questions usually starts with Explain how, What are the reasons for...?, Why...?, How....?

**For example:**

- What is the reason behind the following: -
- What are the advantages and disadvantages of ( )
- Identify and explain two problems that might occur as a result of the use of (.....)
- List three ways of ( )

**2. True or false type of exams:**

In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence. Examples should be provided

**For instance:**

- Fill in the blanks with suitable terms:
- Correct the underlined parts if they are false:
- Put (T) for true statement and (F) for false statement then correct the mistakes.
- Compare ( ) with ( )
- Draw distinctions between ( ) and ( )

**3. Multiple choices:**

In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase. Examples should be provided.

**For example:**

Identify the choice that best completes the statement or answers the question.

**4. Another styles of Questions may serve students:**

- Define following terms?
- Draw a scheme or picture of ( )
- Describe two types of ( )
- Describe three different practices that can be used to ( )
- Match the words in column A with the related /suitable words in column B.