

To: The Engineering Faculty

From: The Faculty of the School of Materials Engineering

Re: New graduate course – **MSE 57400 Sports Engineering and Entrepreneurship:**

The Faculty of the School of Materials Engineering has approved the following new graduate course as of December 5, 2022 (see attached document of course description). This action is now submitted to the Engineering Faculty with recommendation for approval.

MSE 57400 Sports Engineering and Entrepreneurship:, Sem 1 or 2, Class 3, Credit 3.
Prerequisites: MSE 33000 or graduate standing.

This course provides an introduction at the graduate level to sports engineering and entrepreneurship. Students will be immersed in the state-of-the-art of the industry and interact with renowned experts in the field. This course is a comprehensive exploration of the key areas of sports engineering (digitalization, equipment and apparel, fan experience, data, etc.) with an emphasis on the future of the industry. The course includes the development of a business plan for a start-up in sports engineering, encouraging students to critically think about where they see opportunities for innovation based on knowledge gained in the course. This is not only for students looking to start their own business, but for any student interested in working in sports engineering.

This course was taught under a temporary course number in Fall 22, Spring 19, and Spring 17 with enrollments of 28, 30, and 30 respectively.



David Bahr, Head
School of Material Engineering

1. MSE 57400: Sports Engineering and Entrepreneurship, Fall 2023

Lecture: Tuesday/Thursday 9:00 – 10:25 am in ME 2004

Lecturer: Prof. Jan-Anders Mansson

IMI Suite 400 (1105 Endeavour Dr.), jmansson@purdue.edu, (765) 491-0469

Office Hours: By appointment only for online meeting

<https://purdue.webex.com/meet/jmansson>

MSE 57400 Sports Engineering and Entrepreneurship:

Class offered fall semester. Credit(s): 3, Tuesday and Thursday, sometime between 9:00am and 12:00pm(noon).

2. Course Description

This course provides an introduction at the graduate level to sports engineering and entrepreneurship. Students will be immersed in the state-of-the-art of the industry and interact with renowned experts in the field. This course is a comprehensive exploration of the key areas of sports engineering (digitalization, equipment and apparel, fan experience, data, etc.) with an emphasis on the future of the industry. The course includes the development of a business plan for a start-up in sports engineering, encouraging students to critically think about where they see opportunities for innovation based on knowledge gained in the course. This is not only for students looking to start their own business, but for any student interested in working in sports engineering.

3. Learning Resources

There are no required materials, however some additional readings and material will be provided throughout the semester. All additional content will be made available to all students on Brightspace.

- Additional readings (more may be added throughout semester):
 - *Dopico, Anna. To Make Riders Faster: Vroomen and White Disrupt the Cycling Industry and Almost Lose It All. A Dopico Consulting Inc., 2018.*
- Brightspace page:
 - You can access the course via Brightspace. It is strongly suggested that you explore and become familiar not only with the site navigation, but with content and resources available for this course. See the Help tab for resources.

4. Learning Outcomes

By the end of the course, you will be able to:

1. Identify the emerging technologies related to performance, sports equipment, apparel, and facilities

2. Understand the underlying technologies and market for a specific sport and its societal impact
3. Develop a business plan that captures the needs and trends of the next generation of sports
4. Demonstrate understanding of the different influencing factors in the decision process during the development of sports equipment, facilities, and apparel

5. Assignments

All assignments will be turned in on Brightspace. Details for each assignment will be posted on Brightspace. Note that all due dates are subject to change. There may also be some reading assignments to help prepare for the guest lecturers.

5.1 Assignments	5.2 Format	5.3 Due	5.4 Points
Sport 2040	Individual paper		20
Technology in Sport	Small group presentation (5-7min)		20
Business Plan	Team presentation + paper		60
			Total: 100

Late assignments: While there is no point deduction for late assignments, each one will be noted and may be used in your final grade adjustment. If you have a special circumstance, please email the course instructor to discuss.

6. Grading Scale

+/- will be assigned within each bracket.

Grading scale can be curved and based on professors discretion.

- A: 90-100
- B: 80-89
- C: 70-79
- D: 60-69
- F: < 59

7. Course Schedule

A more detailed course schedule will be posted on Brightspace. Note that the schedule and assignments are subject to change and any changes will be posted on Brightspace. The official Purdue Academic calendar will be followed as well.

Topic	Number of lectures
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Course introduction, background, and specifics	3
Digitalization and excitement of sport	6
Smart materials and apparel	4
Health/Safety and Integrity	4
Entrepreneurship	4
Final Project Group Work	7
Final Presentations	2

9. Academic Integrity

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information is submitted the greater the opportunity for the university to investigate the concern. More details are available on our course Brightspace table of contents, under University Policies.

Incidents of academic misconduct in this course will be addressed by the course instructor and referred to the Office of Student Rights and Responsibilities (OSRR) for review at the university level. Any violation of course policies as it relates to academic integrity will result minimally in a failing or zero grade for that assignment, and at the instructor's discretion may result in a failing grade for the course. In addition, all incidents of academic misconduct will be forwarded to OSRR, where university penalties, including removal from the university, may be considered.

10. Nondiscrimination Statement

Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life. More details are available on our course Brightspace table of contents, under University Policies.

A link to Purdue's full nondiscrimination policy is included in the Brightspace template and can also be found [here](#).

11. Accessibility

Purdue University strives to make learning experiences as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let me know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247. More details are available on our course Brightspace under Accessibility Information.

12. Mental Health Statement

If you find yourself beginning to feel some stress, anxiety and/or feeling slightly overwhelmed, try [WellTrack](#). Sign in and find information and tools at your fingertips, available to you at any time.

If you need support and information about options and resources, please contact or see the [Office of the Dean of Students](#). Call 765-494-1747. Hours of operation are M-F, 8 am- 5 pm.

If you find yourself struggling to find a healthy balance between academics, social life, stress, etc. sign up for free one-on-one virtual or in-person sessions with a [Purdue Wellness Coach at RecWell](#). Student coaches can help you navigate through barriers and challenges toward your goals throughout the semester. Sign up is completely free and can be done on BoilerConnect. If you have any questions, please contact Purdue Wellness at evans240@purdue.edu.

If you're struggling and need mental health services: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of mental health support, services are available. For help, such individuals should contact [Counseling and Psychological Services \(CAPS\)](#) at 765-494-6995 during and after hours, on weekends and holidays, or by going to the CAPS office of the second floor of the Purdue University Student Health Center (PUSH) during business hours.

13. Emergency Preparation

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's control. Relevant changes to this course will be posted onto the course website or can be obtained by contacting the instructors or TAs via email or phone. You are expected to read your @purdue.edu email on a frequent basis.

Emergency information for ARMS can be found here:

https://www.purdue.edu/ehps/emergency_preparedness/bep/arms-bep.html