ODIN
Executive Summary of the Competition Task Statements

Orbital Launcher Design Competition (ODIN)
Bundesverband studentischer Raumfahrt (BVSR)

Core information for club boards and prospective participants

Date: 25. March 2026

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Supporters can be seen on our website:
https://bvsr.space/odin/

1. Summary

1.1. Overview

Goal: Theoretical design competition focused on a Space-Shot rocket
(Designed as a subscale demonstrator for a future orbital launcher, similar in spirit to the SS-520)

Submission deadline: 31. August 2026, 23:59 german time

Prizes: Total prize pool and prize breakdown will be announced in 2026. Prizes will include an overall winner (main prize) and prizes for best subsystem contributions.

The competition supports a spectrum of participation modes, between:

- **Focus participation** (single main task) — suitable for smaller scope teams
  - Work on one primary task
  - ~50 pages of design description (excluding appendix)
  - Ideal for limited-scope submissions or onboarding new team members
- **Main-prize participation** (comprehensive) — for established teams
  - Work on 4 or more tasks
  - Up to 120 pages of design description (excluding appendix)
  - Intended for experienced teams with broader capacity

Additionally, there is a non-competitive participation mode: **Correspondence participation** (submission without competing for prizes).

1.1.1. Key innovations

Feature	Enabled by
✅ **Modularity**	6 subsystems and their components (these constitute the main competition tasks)
✅ **Pragmatism**	"Build what you can" approach designed for student resources
✅ **Synergies**	Knowledge exchange within the BVSR network

1.1.2. Why participate?

- Grow and deepen expertise in rocket development
- Build new competencies for your club and for BVSR at large
- Practice preparing project outlines for funding bids and calls
- (For CubeSat clubs) develop payload concepts for small launchers
- Showcase club know-how to judges and industry partners

1.2. Competition objectives

1.2.1. Technological milestones

- **Space-Shot demonstrator** (100+ km, suborbital flight profile)
  - Demonstrator components are the primary focus of the task statements.
- **Scalable components for an MVL target** (Minimal Viable orbital Launcher, 2–6 kg to LEO)
  - The competition is theoretically oriented.
  - Depth of the argumentation is left to the teams.

1.2.2. Scope and intent of the task statements

- "Scope" should be interpreted as the time and effort required by the task statement.
- Strategic modularity and the broad openness of the task statements allow submissions with very limited scope to remain competitive for prizes in a given task.
  - "Adapted" does not necessarily mean a component must be deliberately designed for MVL use.
  - "Adapted" can mean treating components from existing club projects as candidate components for the demonstrator and documenting design considerations and gaps that would need to be addressed to use them in the demonstrator or an MVL.
  - **Minimal scope for a task:** comparable to the scope of a subsystem technical report for EuRoC — roughly three months' work for a small team (team size dependent).
- The intention is to collect and amplify the strengths of participating clubs. The competition is *not* intended to actually build the demonstrator at this stage.
  - Participation in ODIN should not compete with existing club projects.

Illustrative example:

S²OUTH from WüSpace enhances HyEnD's N2ORTH project through telemetry and is specialized in aerospace informatics. ODIN intends to gather specializations like these through submissions, foster cooperation and exchange, and not obstruct ongoing projects.
ODIN is focused on theoretical considerations for the Space-Shot demonstrator.
What follows after ODIN will be decided after the competition.

To enable this, participation in ODIN may be structured as an independent project, as ancillary work to an existing project, or as onboarding to deepen engagement with past club projects.

Participation modes (variable scope):

Main-prize participation > Focus participation > Correspondence participation

1.3. For club boards / leadership

Strategic advantages:

- No obligation to enter the full competition
- Contribute where you are strongest (e.g., only Avionics and Propulsion: focus the submission)
- Submissions can be combined with ongoing projects
- Present past club work as demonstrable know-how

2. Executive summary of the task statements

2.1. Task overview

The competition comprises **six main tasks** (Propulsion, Aerostructures, Avionics, Recovery, GSE, and Payload) to develop scalable subsystems and **three additional tasks** (Cost analysis, Manufacturing, Flight simulation). Each main task requires component designs for the demonstrator plus scaling considerations toward an MVL. The systemic approach emphasizes modularity, testability and practicability with a focus on student-level resources.

2.2. Participation options

Member clubs may form teams and choose between **Focus participation** (1–3 tasks, suitable for onboarding) and **Main-prize participation** (4+ tasks). Submissions must be structured PDFs with a clear separation between core content and appendix. Non-competitive submissions that present club know-how are explicitly encouraged (for example: single component concepts, manufacturing methods or student technologies evaluated in the demonstrator use-case, without completing a full competition task) — these are classed as **Correspondence participation** (not eligible for prizes).

2.3. Evaluation

Assessment follows a minimal-viability approach: solutions must be feasible, testable and scalable. Each task is scored on an ESA-style scale (0–100 points). Different tasks may emphasize specific criteria — for example, safety and GSE robustness, redundancy and fault-tolerance in Avionics, or zero-debris compliance and scientific merit in Payloads. The overall score is a weighted combination of main tasks and additional tasks.

2.4. Documentation requirements

Submissions must be provided as PDF (max. 120 pages of design description, excluding appendix), and should be structured to include: statement of intent, system overview, task treatments, and an implementation feasibility conclusion. Appendices should include test protocols, raw data, and technical details. The European Rocketry Challenge's Technical Report is a recommended template. Example reference: https://github.com/SpaceTeam/uHoubolt

2.5. Tasks / Subsystems (high level)

Each main task includes specific acceptance criteria, for example:

- **Propulsion:** thrust analysis, scaling methodology, and test protocols
- **Avionics:** radiation compliance, real-time data processing and filtering
- **Payload:** zero-debris demonstration and scientific utility

Additional tasks such as flight simulation require realistic models and risk analyses. Clubs are encouraged to concentrate on their strengths — for example CubeSat teams may focus on payload designs.

2.6. Conclusion

ODIN enables flexible engagement: from single tasks to whole-system submissions, from theoretical studies to practice-oriented work. The competition aims not only to demonstrably advance technologies, but also to foster networking and visibility for student projects within industry and research.

Contact: odin@bvsr.space **Submission deadline:** 31. Aug. 2026