

MOTOSTUDENT SPORTS GENERAL REGULATION

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1 COMPETITION OBJECTIVE

MotoStudent Competition promoted by Moto Engineering Foundation (MEF from now on) is a challenge among University teams from different Spanish Universities, European and worldwide

It consists in designing and developing one prototype of a small engine competition motorcycle 250cc 4- stroke which, previously evaluated, will compete during some days. The competition will initially be carried on Motorland Aragón sports facilities.

In order to fulfill this competition objective, the University team must be integrated in a factory of competition motorcycles, to develop and manufacture a model under some technical and economic conditions, previously given.

Competition itself is a challenge to the students, where they, in a period of three semesters, have to show and prove their creation and innovation capacity and their abilities to apply directly their skills as Engineers in comparison to other teams from Universities over the world.

2 COMPETITION PHASES

Motorcycles will be judged along some series of events both static and dynamic ones which will include: expositions and booth, technical inspections, dynamic demos, etc.

To test and score the projects, competition will have a selection process by phases.

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Motorcycles and projects must achieve requisites such as endurance, safety and performance , previously mentioned in the technical rules to participate.

Teams which accomplish these requirements will compete in M.S.1 phase where the project will be evaluated under an industrial point of view, paying attention to aesthetic, technical and economic aspects. This evaluation, the standard of judgement, jury and awards are detailed in the document attached to this paper.

Motorcycles which have overcome this trials will participate in the following phase called MS2, consisting in dynamic tests.

To the final judgement, the motorbikes will be ridden by federated riders that participate in young promotion cups, chosen by the teams and authorized by the Organization. Trials and their evaluation are specified in the document attached.

Phases to pass by the teams

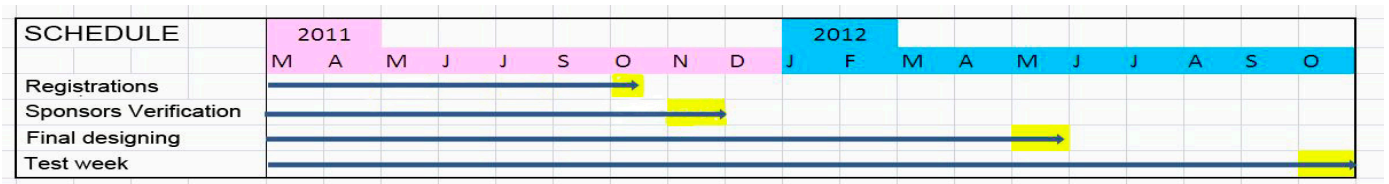
	Qualifying	Scoring
Minimal Requirements	Yes	No
MS1 Phase (Project)	Yes	Yes
MS2 Phase (Safety)	Yes	No
MS2 Phase (Dynamic tests)	Yes	Yes
MS2 Phase (Race)	Yes	Yes

All the entrant teams to be tested on any category must surpass the minimal level, both in MS1 and MS2, that is to say, none of the teams can fix as an objective to participate just in one category because that fact is against the competition spirit itself.

3 SCHEDULE

The competition schedule has key dates with which the different teams should accept to be evaluated at the end of the competition since it is not only about developing a prototype but also an engineering project. In the following figure are indicated the key dates .

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4 RULES

4.1 Official Languages

The MotoStudent Competition official languages will be Spanish and English. Document delivery, public expositions and information related to the competition will be accepted in both languages.

4.2 Competent authority on Rules

MEF Foundation has the exclusive responsibility for the MotoStudent Rules. Any official announcement from MEF will be considered as a part of the rules and have the same validity as the rules published in this paper.

Ambiguities and questions related to meanings or purposes of these regulations will be solved by MEF.

All these questions, reference forms, etc will be available for the teams in a database, made for them and place on the MEF website.

Likewise questions and answers will be filed on an electronic structure both in particular and general level at the disposal of each team.

4.3 Applicability of the Rules

MotoStudent Regulations published in the web and dated at the competition timetable, will be the rules which will take effect to each edition.

4.4 Regulations Understanding

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Teams are responsible for reading and understanding of the rules. Competition rules include not only these regulations but also all the official announcements published in MotoStudent.com web.

4.5 Observing the rules

To take part in the competition, University teams, individual members, each University tutor and any other people belonging to a University team will be bound to observe the rules and/or announced by MEF. Every team, University tutors, and representatives should cooperate and follow instructions given by Organizing Committee and by judges of the MEF.

4.6 Rules Infringement

Any infringement of the rules will mean an expulsion from the competition without any option to claim in case of proved premeditation. Any question, doubt or commentary should be submitted to the Organizing Committee according to the procedure.

4.7 Refusal of vehicles

The Organizing Committee of the event reserves the right to check and supervise the activities of the teams, at any moment.

Every aspect detected during the checking that violates the competition principles implies the expulsion of the involved team. Every team can contest another one if any anomaly is found out. The objections must be put down on paper, making reference to the rules article alleged to have been infringed. Besides, they will be accompanied by a deposit which should be given back by the organization in case the claim prospers. The deposit quantity will be fixed by the organization and it would be similar to the first award quantity, depending on the case.

4.8 Changes in rules

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The Organizing Committee reserves the right to review the competition schedule and/or modify competition rules at any time, using any way to spread them more efficiently, for the MotoStudent, remaining registered in the competition website.

5 REGULATIONS ON THE TEAMS

5.1 Competitors' individual Requirements

The main goal of the competition is to facilitate training and formation to the students. It is completely an engineering competition and not a race championship, and bearing this in mind, participants should be graduate or post-graduate students.

To belong to a registered team at competition, students must be enrolled at one Public or Private University. They must be enrolled in a degree or postgraduate studies. At least, they should have passed 50 % of their degree course credits. A minimal age of 18 is established for the team members.

5.2 Team Requirements

Teams and their members, registered in the competition will be considered as "participants of the event" since their registration up to the end of competition. Each team will have a minimal of 7 participants and a maximum of 15. Every University team who participates in MotoStudent must take as a part of its identification, the University name to which it belongs.

Also, other teaching institutions can collaborate with the teams in the development phase, as for instance Secondary Schools, which could complement the facilities and abilities of the University participants.

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Nevertheless in the competition days only students officially registered could entry to the different race and test boxes

It will be possible to modify the team components up to six months (academic semester) before the event, provided that a minimum of 60% of the members belong to the initial registered team. By no means, the number of members could be reduced, that is to say, only will be possible to replace or add participants. These modifications must promptly communicate to the Organization. The replacement doesn't carry extra charge.

5.3 Team TUTOR. Team official representatives

Each team should name a University Tutor, being a University teacher or University technical staff. Likewise, the above mentioned tutor must go along with the students' team to the competition and he will be considered as the official representative to the University team.

The Tutor together with the representative student, chosen by the students themselves will be responsible of being in touch with the Organization and will be the unique official representatives for the teams, accepted by the Organization.

5.4 Federative Aspects

As they are engineering tests and not only racing ones, teams will not have to demonstrate that some of the members have federative licenses dispatched by the competent authority. But the rider elected by the team will have to prove to be federated in the corresponding regional federation. Rider is considered a member and part of the team from the moment he is accepted by the Organization and he will have the same rights and duties as any other team member excluding academic requirements which are not applied to him.

5.5 Insurance Policies

Registered Universities must include into their professional record all the made activities so that this competition form part of the activities which covers the School Insurance. However each team will have a private insurance as guarantee against any possible accident which will cover each of its members.

5.6 Outside assistance to the University teams

The fact that, teachers and University technicians, as well as Sector technicians become involved into competition is essential and desirable to it. But it is necessary to remember that competition spirit is to encourage the students' skills and to provide an appropriate background to it, and it is also everybody's responsibility. It is important to notice that the fact that the own students carry out the tasks and direct actions in the prototype construction will be marked as a principal project aspect.

5.7 Number of entrant teams

The maximum number of teams in the 2011-2012 edition is 40 teams.

Each University can apply more than one team. Each team just can do one project and prototype.

REGISTRATION

6.1 Entry Fee

Entry fee is 350 € plus VAT by each student-member of the team, rider included.

Fees should be paid to MotoStudent Organization before the end of June 2011.

Fees will be non-refundable.

Registration enables to the registered students to take part in the competition and also to accede to the materials and services provided by the Organization to the teams. These materials are mentioned in the technical rules.

6.2 To validate the registration

During the line-up of the teams, a pre-registration form placed on the MotoStudent website home, will be sent to the Organization, indicating students who are initially going to be a members of the team and their contact information and identification.

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Each and every member of the participant teams should bring documents below at the moment of the registration, and provide contact information in case of emergencies.

Registration will be completed filling the documents placed on the tab strip "teams" on MotoStudent website.

Doc MS_2011-01. Team Members

Doc MS_2011-02. Team Setting-up

Doc MS_2011-03. Letter to make a team official

Doc MS_2011-04. Image of the bank transfer

Doc MS_2011-05. Image of the insurance

Doc MS_2011-06. CAD system application

Doc MS_2011-07 Bench test and endurance test

Once teams have provided the mentioned doc, Organization will give them their respective code to enter their own domain where the digital technical information will be found.

Appendix
TESTS DESCRIPTION

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A. Tests Description

As mentioned above, the teams will have to pass some successive qualifying tests distributed in two phases MS1 and MS2.

A.0 Previous phases to the competition days

So that competition, as described in the information, will have a real industrial nature, deadlines are held to a series of preliminary activities to the competition days.

- Presentation of sponsors' documentation. Teams must clearly prove which companies and institutions finance the construction of the prototype. It will be formalized through the form on the website and this document must be presented before 1st October 2011, then, teams will receive the proper components in the following two months.
- Presentation of final design. Before 31st May 2012, teams will present to the organization detailed graphic information of the frame and swing arm or equivalent with main dimensions which will be kept by the organization. This information, without any computer manipulation, should enable the jury to verify the future prototypes. The organization determines as specific pattern, pdf documents of general plans and/or maximum A3 size detailed ones. These documents will only be considered by the jury during the competition days, and will validate that the prototype presented answers to that graphic information. Logically, little changes or modifications will be accepted but no substantial ones.

Non-fulfillment of those standards leads to the separation from competition.

A.1 MS1 Phase

MS1 Phase is a demonstrative one where teams have to show and explain their prototypes made and the industrialization projects of those prototypes.

A1.1 Prototype demonstration

Groups will present a prototype to be reviewed by the inspectors in accordance with dimensional and security aspects indicated by technical rules.

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Teams can acquire spare parts (any component or motorcycle parts), which they may need. These spare parts have to be presented to the organization simultaneously to the prototype in order to be checked, validated and stamped. Using non-stamped components (by the Organization) means the immediate expulsion from the competition.

On the other hand, a minimum test run will be carried out in the paddock. The test will consist of one start/stop test and another one of right and left maneuverability test through 10 cones in line with a distance of 3 meters between them. Also appropriate notice boards will be presented in the stands prepared by the organization.

A.1.2 Industrial Project Exhibition

The project will be developed under the following conditions:

A racing motorcycle, with a mass production of 500 units per year and a maximum production cost of 4500€. This concept includes the following issues: components (external purchases), tool amortization in 5 years, direct labour, scope, company infrastructure and financial expenses. This mass-production motorcycle comes from the prototype with the minimum differences required in the mass production process and the adaptation of the components in the mass production motorcycle which does not have to be the same than in the prototype.

The project will consist of four different and independent sections, with the highest following scores.

- A. Vehicle Design(150 points)
- B. Technical calculations (175 points)
- C. Manufacturing and industrialization system definition
- D. Costs analysis from:

Prototype developing

Industrial manufacturing process of the series (100 points)

A and B sections will make up a presentation and C and D industrial project sections another one. Both will be exposed to an expert Jury chosen by the Organization.

To expose each one of the sections, teams will name one or two different students.

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A.1.3 Jury

The jury who will evaluate the projects is composed of industrial sector technicians and of motorbikes competition experts chosen by the Organization.

There will be a jury for A and B sections and another one for C and D.

Jury judgement will be unappealable.

A.1.4 Awards

Awards will be given to:

The best industrial project with a cash prize of 6000€ and a trophy

Also two secondary awards for the best design with a cash prize of 3000€ and a trophy

-The best Technological innovation with a cash prize of 3000€ and a trophy

The rest of the teams who passed the test will receive an official diploma.

A.2 MS.2 Phase

The MS.2 Phase is an experimental validation phase where prototype motorcycles which have overcome MS.1 phase must pass different bench and track tests to prove their performance quality.

A.2.1 Bench safety tests

These tests try to be a sturdiness, reliability and safety guarantee against track tests.

So motorcycles should pass the following tests:

- Chassis endurance test according to technical rules
- Braking test in roller bench according to technical rules
- Noise emissions test

The system of showing and testing motorcycles will be carried out by means of a verification process which is made known long beforehand to the teams.

A.2.2 MS2 Phase (Dynamic tests)

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A.2.2.1 Evaluation of minimum features

Teams who had overcome safety test will undertake a minimum features test in track. Organization will give two series of 40 minutes to the teams during the services test.

The minimum requirements are durability and minimum features, so that motorcycles will be considered as suitable for the race, they have to:

Complete at least 7 consecutive laps at an average speed not less than 110 Km/h

A.2.2.2 Race

Motorcycles which have passed the preceding test, will take part in a circuit speed race.

The starting grid will be set up according to the obtained classification, on average, 7 laps in a row run in evaluation turns.

Motorcycles will be driven by riders proposed by entrant teams and authorized by the Organization according to section 2.

The race will take place on a minimum distance of 35 km. Organization will accurately set the number of laps and the length of time race.

A.2.2.3 Awards

Awards will be given to the first three classified motorcycles.

The team of the first classified motorcycle will receive a 6000€ award and a trophy.

The second one will be given 3000€ and a trophy.

The third place will receive 1500€ award and a trophy.

The rest of the teams who have completed the race will have a trophy reminding their participation in the tests.

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