

Practical part: Workstations and Timetable

	1 Igor Skukan Stefan Recka, SK	2 Marko Godeša Thomas Vautard, FR	3 Mlinšek, Klun Alfred Lehner, AT	4 Miha Škoda L Vitalij Kabelis, LT	5 Gašper Kavčnik Kristijan Petreski, Mk	6 B. Kermavnar Jan Michalski, PL	7 S. Petkovšek Jan Vacek, CZ	8 B. Bokavšek Seyit Ali Erdogan, TR	9 S. Beseničar Michael Parth, AT	10 M. Mrzlikar Martin Št'ourač, CZ	Stu	dents / Staff	
	Rafael Geiblinger	Atakan Altunay	Erikas Rynkevičius	Bojan Todorovski	Petr Vrba	Tomas Racek	Thomas Loiodice	Kamil Misiewicz		Luka Brazda	Rafael Geiblinger		Žen Velk
9.00	Günther Hagler	Kubilay Tasgin	Kęstutis Mockus	Berat Memeti	Jakub Niezgodzki	Sebastian Polozsanyi	Benjamin Ragot	Radosław Bladocha		Jošt Gornik	Günther Hagler	AI	Zan Voik
	Luka Brazda	Rafael Geiblinger	Atakan Altunay	Erikas Rynkevičius	Bojan Todorovski	Petr Vrba	Tomas Racek	Thomas Loiodice	Kamil Misiewicz		Atakan Altunay	тр	Jaka
9.30	Jošt Gornik	Günther Hagler	Kubilay Tasgin	Kęstutis Mockus	Berat Memeti	Jakub Niezgodzki	Sebastian Polozsanyi	Benjamin Ragot	Radosław Bladocha		Kubilay Tasgin	IK	Petrovič
		Luka Brazda	Rafael Geiblinger	Atakan Altunay	Erikas Rynkevičius	Bojan Todorovski	Petr Vrba	Tomas Racek	Thomas Loiodice	Kamil Misiewicz	Erikas Rynkevičius		Mark
10.00		Jošt Gornik	Günther Hagler	Kubilay Tasgin	Kęstutis Mockus	Berat Memeti	Jakub Niezgodzki	Sebastian Polozsanyi	Benjamin Ragot	Radosław Bladocha	Kęstutis Mockus	LI	Gregorič
	Kamil Misiewicz		Luka Brazda	Rafael Geiblinger	Atakan Altunay	Erikas Rynkevičius	Bojan Todorovski	Petr Vrba	Tomas Racek	Thomas Loiodice	Bojan Todorovski	NAIZ	Ahmet
10.30	Radosław Bladocha		Jošt Gornik	Günther Hagler	Kubilay Tasgin	Kęstutis Mockus	Berat Memeti	Jakub Niezgodzki	Sebastian Polozsanyi	Benjamin Ragot	Berat Memeti	MK	Macanovič
	Thomas Loiodice	Kamil Misiewicz		Luka Brazda	Rafael Geiblinger	Atakan Altunay	Erikas Rynkevičius	Bojan Todorovski	Petr Vrba	Tomas Racek	Petr Vrba		Jaka
11.00	Benjamin Ragot	Radosław Bladocha		Jošt Gornik	Günther Hagler	Kubilay Tasgin	Kęstutis Mockus	Berat Memeti	Jakub Niezgodzki	Sebastian Polozsanyi	Jakub Niezgodzki	CZ	Hočevar
11.30					Odmor	za kavo					Tomas Racek		
	Tomas Racek	Thomas Loiodice	Kamil Misiewicz		Luka Brazda	Rafael Geiblinger	Atakan Altunay	Erikas Rynkevičius	Bojan Todorovski	Petr Vrba	Sebastian Polozsanyi	SK	Nik Čop
12.00	Sebastian Polozsanyi	Benjamin Ragot	Radosław Bladocha		Jošt Gornik	Günther Hagler	Kubilay Tasgin	Kęstutis Mockus	Berat Memeti	Jakub Niezgodzki	Thomas Loiodice	50	Boris
	Petr Vrba	Tomas Racek	Thomas Loiodice	Kamil Misiewicz		Luka Brazda	Rafael Geiblinger	Atakan Altunay	Erikas Rynkevičius	Bojan Todorovski	Benjamin Ragot	FR	Peševski
12.30	Jakub Niezgodzki	Sebastian Polozsanyi	Benjamin Ragot	Radosław Bladocha		Jošt Gornik	Günther Hagler	Kubilay Tasgin	Kęstutis Mockus	Berat Memeti	Kamil Misiewicz		Klemen
	Bojan Todorovski	Petr Vrba	Tomas Racek	Thomas Loiodice	Kamil Misiewicz		Luka Brazda	Rafael Geiblinger	Atakan Altunay	Erikas Rynkevičius	Radosław Bladocha	PL	Adamič
13.00	Berat Memeti	Jakub Niezgodzki	Sebastian Polozsanyi	Benjamin Ragot	Radosław Bladocha		Jošt Gornik	Günther Hagler	Kubilay Tasgin	Kęstutis Mockus	Luka Brazda	ci.	Jan
	Erikas Rynkevičius	Bojan Todorovski	Petr Vrba	Tomas Racek	Thomas Loiodice	Kamil Misiewicz		Luka Brazda	Rafael Geiblinger	Atakan Altunay	Jošt Gornik	51	Korošec
13.30	Kęstutis Mockus	Berat Memeti	Jakub Niezgodzki	Sebastian Polozsanyi	Benjamin Ragot	Radosław Bladocha		Jošt Gornik	Günther Hagler	Kubilay Tasgin			
	Atakan Altunay	Erikas Rynkevičius	Bojan Todorovski	Petr Vrba	Tomas Racek	Thomas Loiodice	Kamil Misiewicz		Luka Brazda	Rafael Geiblinger			
14.00	Kubilay Tasgin	Kęstutis Mockus	Berat Memeti	Jakub Niezgodzki	Sebastian Polozsanyi	Benjamin Ragot	Radosław Bladocha		Jošt Gornik	Günther Hagler			



Practical part of the competition

Task number 1

Connecting tow hitch

Date: 1. 6. 2017 Duration: 20 minutes

Instructions:

Connect electrical installation of the vehicle on the panel in accordance with the attached diagram, using all the electrical elements given in the diagram. You have 20 minutes.

The commission will check the connections on the panel and test electrical installations. The commission may refuse the test should it find incomplete and/or incorrectly connected and will assess the possibility of damage to the panels or electrical elements.

Equipment required: Panel, electrical cable ties and electrical multimeter.

	Criterion	Max. points	Points
1	ELECTRICAL CONNECTION CHECK:		
	Correct connection of electrical circuit.	10	
	All given elements are included in the circuit.	10	
	Check continuity with multimeter.	10	
2	CHECK:		
	Blinkers test.	5	
	Breaking light test.	5	
	Headlights test.	5	
	Fog and rear light test.	5	
	POINTS	50	

Note: In the case of partial malfunction or partial electrical installation operation, proportional part of points in the above table are given.



- 1 L Left blinker (YELLOW)
- 2 54/g (fog light, rear light) (BLUE)
- **3** 31 Ground () (WHITE)
- **4** R Right blinker (GREEN)
- **5** 58R Right parking light (BROWN)
- **6** 54 Brake light (RED)
- 7 58L Left parking light (BLACK)



Practical part of the competition

Task 2 Air-conditioning device Date: 1. 6. 2017 Duration: 10 minutes

Instructions:

Identify all parts of an air-conditioning system (A/C), state high and low pressure when air-condition is on and off. Measure output temperature on the air vents when air-condition is on and off and write down the value.

Equipment required: charging station, thermometer.

	Criterion	Max. points	Points
1	CHECK THE AIR-CONDITIONING SYSTEM		
	Identify air-conditioning components.	10	
	Identify high and low pressure of manometer.	10	
2	TEST AIR-CONDITIONING SYSTEM PERFORMANCE		
	Check manometer when A/C is turned on.	10	
	Check manometer when A/C is turned off.	10	
	Measure temperature on outlet vents when A/C is turned on.	5	
	Correct use of protective equipment.	5	
	POINTS	50	

1. Name parts (a-f) of an air-condition unit.



condenser			
filter			
evaporator			
connecting hoses			
compressor			
expansion valve			

2. Connect manometer to A/C system and write down pressure and temperature when engine is running and switched off.

Engine switched off

	High pressure	Low pressure	Good/bad
Pressure			
Temperature			

Engine running (A/C is on)

	High pressure	Low pressure	Good/bad
Pressure			
Temperature			



Practical part of the competition

Task number 3 Connecting blinkers and indicators on the panel

Date: 1. 6. 2017 Duration: 20 minutes

Instructions:

Connect electrical installation of the vehicle on the panel in accordance with the attached diagram, using all the electrical elements given in the diagram. You have 20 minutes.

The commission will check the connections on the panel and test electrical installations. The commission may refuse the test should it find incomplete and/or incorrectly connected and will assess the possibility of damage to the panels or electrical elements.

Equipment required: Panel, electrical cable ties and electrical multimeter.

	Criterion	Max. points	Points
1	ELECTRICAL CONNECTION CHECK:		
	Correct connection of electrical circuit.	5	
	All given elements are included in the circuit.	5	
2	BLINKERS TEST:		
	Both left blinkers are working when the switch is on.	5	
	Both right blinkers are working when the switch is on.	5	
	Dashboard indicators work.	5	
	Blinkers and indicators do not work when switched off.	5	
3	WARNING LIGHTS TEST:		
	All warning lights work when switched on.	5	
	All warning lights work when switched off.	5	
	All warning lights work when switch lock and blinkers are on <u>simultaneously</u> (left, then right).	5	
	Blinker indicator and warning light indicator on the dashboard work when switch lock is on or off.	5	
	POINTS	50	

Note: In the case of partial malfunction or partial electrical installation operation, proportional part of points in the above table are given.







Task number 4

Wheel alignment

Date: 1. 6. 2017

Duration: 25 minutes

Instructions:

Prepare the vehicle for wheel alignment, set optical program vehicle type, install optical cameras, perform wheel start and tighten nuts 50 Nm.

Equipment required: vehicle, tyre inflator and pressure gauges, basic tools (wrench, adjustable wrench and torque wrench), optical device and lift, stubby wrench, manometer.

Instructions for work with optical device Hanter:

-vehicle positioning on a lift,

- -installation of reflective targets,
- -gathering data,
- -suspension setting and
- -final print

Left wheel setting	Right wheel setting

Assessment:

	Criterion	Max. points	Points
2	Correct use of tools and wheel setting.	10	
3	Correct procedure of optical setting.	10	
4	Correct procedures of checking air in hydraulic system.	5	
6	Correct tyre air volume (2.3 bar).	10	
7	Bolt tightening on steering column (50 Nm).	5	
8	Correct tyre adjustment $\pm 0,09$ min.	10	
Po	ints	50	

Task 4

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Name and surname:	Points:



Task number 5

Checking compression

Date: 1. 6. 2017

Duration: 25 minutes

Instructions:

Check the compression in the cylinders. Choose and use the correct tools. Write your findings in the table below. The whole procedure should comply with Mechanical Profession and Work Rules for Safety. You may ask a student for help (starting the engine, etc.).

Measuring compression

Exercise nº	Cylinder 1	Cylinder 2	Cylinder 3	Cylinder 4
Measured				
value				
(bar)				

Task number 5

Checking compression

	Criterion	Max. points	Points
1.	CORRECT USE OF TOOLS FOR MEASURING		
	COMPRESSSION:		
	Use of ratchet and adapter	2,5	
	Measuring devices for measuring compression	2,5	
2.	CORRECT MEASURING STEPS:		
	Dismantling ignition cables – coil	4	
	Remove spark plugs	4	
	Fuel supply interruption	4	
	Maximum gas pressure	4	
	Composition & correct use of measurement devices	4	
3.	CORRECT COMPRESSION TESTING AND	10	
	TABLE ENTRY	10	
4.	CORRECT SPARK PLUG:		
	Spark plug sits on a thread ring using your hand	2,5	
	Correct thread 25nm	2,5	
	Engine start	2,5	
5.	CORRECT USE OF SAFETY DEVICE:		
	Work wear (clothes and boots)	2,5	
	Compliance with Rules on Environmental Protection	2,5	
	Tidy Workplace (toolbox)	2,5	
	POINTS	50	



Practical part of the competition

Task number 6 Making steel brake pipe according to the template (L+R) (2 competitors simultaneously)

Date: 1. 6. 2017 Duration: 20 minutes

Instructions:

The vehicle has driven off the road damaging the steel brake pipes. Consequently, new are required to be made on identical billboards L+R. Work placement is determined by draw. Time frame is 20 minutes. After completing the task and/or time expiration the commission checks the product and marks it according to the list below. Properly executed task gets 50 points.

Equipment required:

Identical billboard (template L+R), steel brake pipe roll, meter, rubber hammer, pipe cutter, file, tools for manufacturing brake system bolts and the key to secure brake bolts.

	Criterion	Max. points	Points
	MATERIAL PREPARATION AND USE OF CORRECT TOOLS:		
	Correct steel pipe measurement	5	
	Steel pipe adjustment	5	
	Cutting steel pipe	5	
	MAKING BRAKE STEEL PIPE:		
	Making the first arch	5	
	Making the second arch	5	
	Making the third arch	5	
	SHAPING STEEL PIPE ENDS WITH TOOLS:		
	Beginning of steel brake pipe	5	
	End of steel brake pipe	5	
	ADJUSTMENT TO THE BRAKE SYSTEM:		
	Beginning of the steel brake pipe	5	
	End of steel brake pipe	5	
	Number of pipe touches against the template	-2	
PO	INTS	50	

Note: - Every correct operation counts 5 points. - Every pipe touch against the template -2 points. Task 6 This page is intentionally left blank.



Practical part of the competition

Task number 7 BRAKE SYSTEM: Measuring uneven brake wear

Date: 1. 6. 2017

Duration: 15 minutes

Description of a problem when using a vehicle: Steering wheel shakes when braking.

Instructions: Using a measuring system measure disc brake wear.

Equipment required:

The contestant is given all necessary tools and instructions before performing a task. In the case of exceeding the maximum time (15 min), the contestant receives 0 points.

Criterion	Max. points	Points
1. Check brake system on front suspension.	5	
2. Check brake system on rear suspension.	5	
3. Correct preparation of brake discs to start measuring. The hardness of the wheel bold is 8.8	15	
4. Correct wear entry: (mm) FRONT 0.01MM= -2 POINTS	10	
5. Correct wear entry: (mm) REAR 0.01MM= -2 POINTS	10	
6. If the task is done in less than 5 minutes + 5 POINTS 6 minutes + 4 POINTS 7 minutes + 3 POINTS 8 minutes + 2 POINTS 9 minutes + 1 POINTS longer than 9 minutes 0 POINTS TIME:	5	
POINTS	50	

Task 7 This page is intentionally left blank.



Practical part of the competition

Task number 8 Headlights adjustment

Date: 1. 6. 2017

Duration: 10 minutes

Instructions: Adjust halogen headlights correctly. Use and choose correct tools. The procedure should comply with professional standards:

-Bulb (24V) replacement - front right;

-Incorrect tyre pressure - front left tyre;

-Incorrect left headlight adjustment.

Equipment required: vehicle, ratchet scope, tools for headlights adjustment (screwdriver, wrench, allen/hex wrench), compressed air piping products, manometer and spare bulb.

	Criterion	Max. points	Points
1	Correct vehicle setting (flat, steering wheel alignment).	5	
2	Tyre pressure check (according to the vehicle)		
	Frontbar	5	
	Backbar		
3	Check lamp brightness (low beam, head, left).	10	
4	Check lamp brightness (low beam, head, right).	10	
5	Check if bulbs are correctly installed in the lights, replace them	10	
	if necessary.	10	
6	Headlights height adjustment.	5	
7	Headlights direction adjustment.	5	
	POINTS	50	

Task 8 This page is intentionally left blank.



Task number 9 Identifying errors using a Bosch tester

Date: 1. 6. 2017 Duration: 10 minutes

Instructions:

Using a Bosch tester read errors and values on a computer model, Fiat Punto Evo 1.2 8V. Write error code in the table below.

Write the value of the engine coolant temperature sensor in the table below. (Temperatures in Degrees Celsius, voltage in V).

Equipment required: Bosch tester.

	Criterion	Max. points	Points
1	ERROR OVERVIEW ON A COMPUTER MODEL:		
	Correct use of Bosch tester	10	
	Error 1	5	
	Error 2	5	
	Error 3	5	
	Error 4	5	
2	ERROR OVERVIEW ON A COMPUTER MODEL		
	Temp. sensor value (V)	10	
	Temp. sensor value (C)	10	
	POINTS	50	

Note: If the contestant is unable to use the tester and/or exceeds the time provided to solve the problem, no points are given.

Task 9 This page is intentionally left blank.



Task number 10

TYRE CHANGE

Date: 1. 6. 2017

Duration: Breaking the time limit

Equipment required: vehicle, tyre inflator and pressure gauges, wrench set (alloy wheels), stubby wrench, spare tyre and appropriate tools.

	Criterion	Approx. time for incorrect procedures	Time value
1	Correct choice of tools for loosening lugs.	10 s	
2	Correct procedures for tyre removal.	10 s	
3	Correct tyre installation procedure.	30 s	
4	Correct tyre installation on the vehicle (matching thread)	Disqualification	
5	 Tightening wheel bolts at a certain moment (100 Nm - steel wheels or 120 Nm - alloy wheels) (check 160 Nm) 	10 s/bolt	
6	Correct tyre pressure (2.3 bar)	10 s	
Time needed for tyre change (stop watch)			
Time			
Points according to time			

Task 10: Criteria

Criterion of points according to time consumption (the fastest gets 50 points, next -3 points according to the table below).

50 points	26 points
47 points	23 points
44 points	20 points
41 points	17 points
38 points	14 points
35 points	11 points
32 points	8 points
29 points	5 points