



PROCOM.NET'16

Engineering Competitions Rules and Regulations

This booklet provides a complete overview of what the competitions are about, flow of the competitions, rules and regulations, how you will be judged and more... kindly read the information provided to have a complete understanding of the event.

Contents

AutoCAD Design Competition.....	2
Rounds	2
Winning Criteria.....	2
Rules and Regulations	2
Resources provided	2
Circuit Design Competition	3
Rounds	3
Winning Criteria.....	3
Rules and Regulations	3
Resources provided	3
Project Exhibition	4
Winning Criteria.....	4
Rules and Regulations	4
Resources provided	4
Microcontroller Programming and Interfacing Competition	5
Rounds	5
Winning Criteria.....	5
Rules and Regulations	5
Resource provided.....	5
Network Design Competition	6
Rounds	6
Winning Criteria.....	6
Rules and Regulations	6
Resource provided.....	6
Robo Race	7
Robot Specifications	7
Game Rules	7
General Rules	7
Robo War.....	8
Robot Specifications	8
Game Rules	8
General Rules	8
Soldering Competition.....	9
Rounds	9
Winning Criteria.....	9
Rules and Regulations	9
Resources provided	9

AutoCAD Design Competition

ProCom 2016 presents the AutoCAD Designing competition to show your talent and capabilities in AutoCAD Design Process and to become the best straight through merit and high quality performance. We welcome all to participate and enlighten your capabilities.

Rounds

There will be three rounds in AutoCAD competition.

Round 1: 2D Drawing

Round 1 will consist of 30 minutes. 2D drawing(s) will be given to participants for implementing in AutoCAD. No team will be eliminated in this round.

Round 2: 3D Drawing within shortest time

Round 2 will consist of 45-60 minutes. 3D drawing(s) will be given to participants for implementing in AutoCAD. 50% teams will be eliminated after 2nd round on the basis of the scores of round 1 and round 2. Only some qualifying teams will be able to participate in 3rd round.

Final Round: 3D Drawing implementation by a Written Statement

Final round will consist of 45-60 minutes. A written statement of drawing would be given to participant for implementing in AutoCAD. The team implements the best 3D modal of the given drawing(s) will be the winner of the competition.

Winning Criteria

1. Perfect 3D model (eliminate if there is an error)
2. Shortest time taken and Creativity

Rules and Regulations

1. Minimum 2 and maximum 3 members are allowed in each team and it will be a 2-days competition.
2. Candidates must appear at the competition room at least twenty minutes before the commencement of the competition.
3. Candidates must check their computer (Mouse, Keyboard) before starting the competition.
4. Late comers will not be given extra time.
5. Current university, college or institution card is necessary.
6. Competition head/EE coordinator has the right to disqualify any team in any harm case.
7. Calculators will not be provided; so, bring your own calculators.
8. Any dictionary or commands document is not allowed in any format.
9. Judges will analyze performance. Verdict will be final and unobjectionable.
10. Use of any illegal resource during competition (e.g. USB, mobile, internet etc.) will cause in elimination of that team.
11. Only registered candidates will be allowed.
12. Keep saving your task during competition. No extra time will be provided in case of light off or PC shutdown by any reason.
13. If the PC gets hanged due to any reason. Inform to the invigilating team instantly.
14. Ensure yourself that AutoCAD software is correctly installed and working well before starting the competition. No excuses will be entertained during competition.
15. Mobile phones should be switched off during the competition.
16. Candidates must not communicate or disturb other teams during the Competition.
17. Candidates may not leave competition while the competition is in progress due to any reason.

Resources provided

All the basic stationery (rough sheet, pencil, pen) and one computer per team will be provided for designing. Calculator will NOT be provided.

Circuit Design Competition

Circuit Designing Competition provides the participant a chance to test their designing skills to the very limit. If you love to play with electronics, then we provide you a chance to show us your level of skills and expertise.

Rounds

Round 1: MCQ's

First round will be MCQ's round. You will be provided a sheet with thirty MCQ's and you have to complete this round in 30 minutes. After this round 30% teams will be eliminated depending upon getting scores.

Round 2: Debugging

Second round will be Debugging round. You will be provided a sheet having 2 circuits on it OR you may have to debug a circuit on a software (Multisim or Proteus). You have to complete this round in 45-60 minutes. After this round 50% teams will be eliminated depending upon scores obtained in both 1st and 2nd round.

Round 3: Implementation

Third round will be a circuit designing round. In this round you will be provided a sheet on which two tasks will be written. The teams would have to complete both tasks in a given time. Relevant stuff i.e. breadboard, components etc. will be provided.

Winning Criteria

1. Winner will be chosen on the basis of three rounds performance.
2. The circuits will be judged on following criteria:
 - Logic and implementation
 - Time consumed in making the circuit
 - Circuit complexity & stability
 - Working condition of circuit

Rules and Regulations

1. Minimum 2 and maximum 3 members are allowed in each team and it will be a 2-days competition.
2. Candidates must appear at the competition room at least twenty minutes before the commencement of the competition.
3. Candidates must check their computer (Mouse, Keyboard) before starting the competition.
4. Late comers will not be given extra time.
5. Current university, college or institution card is necessary.
6. Competition head/EE coordinator has the right to disqualify any team in any harm case.
7. Calculators will not be provided; so, bring your own calculators.
8. Any material/document is not allowed in any format.
9. Judges will analyze performance. Verdict will be final and unobjectionable.
10. Use of any illegal resource during competition (e.g. USB, mobile, Internet etc.) will cause in elimination of that team.
11. Only registered candidates will be allowed.
12. Keep saving your task during competition. No extra time will be provided in case of light off or PC shutdown by any reason.
13. If the PC gets hanged due to any reason. Inform to the invigilating team instantly.
14. Ensure yourself that Multisim and Proteus software is correctly installed and working well before starting the competition. No excuses will be entertained during competition.
15. Mobile phones should be switched off during the competition.
16. Candidates must not communicate or disturb other teams during the competition.
17. Candidates may not leave competition while the competition is in progress due to any reason.

Resources provided

All the basic stationary (rough sheet, pencil, pen) and one computer per team, power supply, and breadboard, etc. will be provided for designing. Calculator will NOT be provided.

Project Exhibition

Showcase your FYPs! Project Exhibition & Competition is the chance for those who want to work on software and hardware both simultaneously and to prove themselves as a team of professional Hardware and Circuit designers. This competition aims to show your idea of hardware designing of different type of project and interfacing with circuit through programming. This competition mainly focuses on the engineering and ingenuity skills portrayed by students in a variety of engineering projects that they have developed during their engineering studies.

The ability of a team is judged as a team work and seeks for the better team players of tomorrow in the practical work of the field for our beloved Pakistan and provides them a chance to enhance their ability of competition. We will be testing your programming and interfacing skills of the Hardware. All participants are appreciated.

Winning Criteria

- | | |
|-------------------------------|-------------------|
| 1. Working Project | 4. Knowledge |
| 2. Novelty of design and idea | 5. Presentation |
| 3. Practical Aspects | 6. Project report |

Rules and Regulations

1. All the tasks have to be completed in a given time before the evaluation of judges.
2. Minimum 2 and **maximum 4** members are allowed in each team and it will be a 2-days competition
3. Computers are not provided. Bring your own Laptop to use their project.
4. Projects must have a showcasing documentation (poster, block diagrams etc.)
5. The projects will be on display for general public. The participants are required to be present with the project to demonstrate it at all times.
6. Participants must inform the Hardware Exhibition & Competition management Team about any hardware or software they bring along with them, in order to deal with Security department properly.
7. A panel of judges will evaluate each project during the event organized at FAST-NU, Karachi Campus. Participants are required to be present at the time of evaluation of their projects by the panel of judges.
8. Different judges will visit projects at different times).
9. Any type of ill behavior will result in immediate disqualification.
10. The contestants shall not leave their seats without prior consent from the authorities, nor talk to any irrelevant person.
11. Be Punctual, no late-comers will be allowed to sit in the contest area.
12. Any prototype not executing properly will not be considered for evaluation.
13. If any project is found to be a replica of another project, the act shall be considered cheating and judges can disqualify participants and the entry fee shall be forfeited.
14. Only selected projects will be exhibited. Participants will not be allowed to display anything other than the selected projects.
15. In all matters regarding competition, decision of the organizing committee and the judges will be considered final and binding on all participants.
16. Use of mobile phones will not be allowed.
17. Any type of software and tools are not provided.
18. Power Supply is provided.
19. The decision of the panel shall be final therefore; no participant or team can challenge the decision.

Resources provided

Single phase AC supply (KE) and tables for displaying projects will be provided. If any team needs anything else or have any special requirements, they are encouraged to bring it along. In case they require assistance from ProCom Team then they should contact Participant Relations and get in touch with the competition head.

Microcontroller Programming and Interfacing Competition

Think you are logical? Have a craze for wining? Then step into the digital age and join us in Microcontroller Programming and Interfacing competition, and go head-to-head with the top future engineers of Pakistan!

This competition encourages the Engineering students to show their talent in the field of Microcontrollers. The competition involves your time management skills, and programming and interfacing skills.

Rounds

Round 1: MCQ's

Round 1 consist of sixty MCQ's about the microprocessor, and microcontroller (8051, PIC, and AVR and Arduino). The total duration of the first round is 30 minutes. No elimination in round 1. Total weightage of round 1 is 10 marks.

Round 2: Software simulation

Round 2 consist on programming and simulation of logical circuits in Proteus Software. Programming in C language (MikroElektronika mikroC PRO 8051 2014, MikroElektronika mikroC PRO AVR 2015, and MikroElektronika mikroC PRO PIC 2015) and any controller can be used. The total duration of the second round is 60 minutes. Total weightage of round 2 is 20 marks. 50% team will be eliminated after round 2 on the bases of the score of round 1 and round 2.

Round 3: Performance using Arduino

Round 3 consist on programming and interfacing of Arduino, and its sensors, and actuators). Total time allowed is 60 minutes. Total weightage of round 3 is 20 marks. Which team programed and interfaced of the given circuit in the shortest time will be the winner of the competition

Winning Criteria

1. Optimize and perfect programming and interfacing in final round (eliminate if there is an error)
2. Shortest time taken

Rules and Regulations

1. Minimum 2 and maximum 3 members are allowed in each team and it will be a 2-days competition.
2. Candidates must appear at the competition room at least twenty minutes before the commencement of the competition.
3. Candidates must check their computer (Mouse, Keyboard) before starting the competition.
4. Late comers will not be given extra time.
5. Current university, college or institution card is necessary.
6. Competition head/EE coordinator has the right to disqualify any team in any harm case.
7. Calculators will not be provided; so, bring your own calculators.
8. Any material/document is not allowed in any format.
9. Judges will analyze performance. Verdict will be final and unobjectionable.
10. Use of any illegal resource during competition (e.g. USB, mobile, Internet etc.) will cause in elimination of that team.
11. Only registered candidates will be allowed.
12. Keep saving your task during competition. No extra time will be provided in case of light off or PC shutdown by any reason.
13. If the PC gets hanged due to any reason. Inform to the invigilating team instantly.
14. Ensure yourself that all software is correctly installed and working well before starting the competition. No excuses will be entertained during competition.
15. Mobile phones should be switched off during the competition.
16. Candidates must not communicate or disturb other teams during the competition.
17. Candidates may not leave competition while the competition is in progress due to any reason.

Resource provided

All the basic stationary (rough sheet, pencil, pen) and one computer per team, power supply, respective controller, electronic components, and breadboard, etc. will be provided for designing. Calculator will NOT be provided.

Network Design Competition

ProCom 2016 brings network simulation to the level of competition. In this competition participants will be required to solve questions regarding networking and to simulate them.

Rounds

There are three rounds in network design competition:

Round 1: MCQ's

Round 1 consist of sixty MCQ's about the data communication and networking (syllabus of CCNA can be used as reference). The total duration of the first round is 30 minutes. No elimination in round 1. Total weightage of round 1 is 10 marks.

Round 2: Network Implementation

Network diagram will be given. Teams should be able to implement following protocols: Static Routing, RIPv1, RIPv2, OSPF, EIGRP, and VLAN. Teams will be expected to implement the topology on Cisco Packet Tracer. 50% teams will be eliminated after round 2 on the bases of the scores of round 1 and round 2.

Round 3: Network implementation in the shortest time.

Round 3 is same as round 2 but the winning should have to complete the given task in the shortest time period.

Winning Criteria

1. Optimize and perfect implementation in final round (eliminate if there is an error)
2. Shortest time taken

Rules and Regulations

1. Minimum 2 and maximum 3 members are allowed in each team and it will be a 2-days competition.
2. Candidates must appear at the competition room at least twenty minutes before the commencement of the competition.
3. Candidates must check their computer (Mouse, Keyboard) before starting the competition.
4. Late comers will not be given extra time.
5. Current university, college or institution card is necessary.
6. Competition head/EE coordinator has the right to disqualify any team in any harm case.
7. Calculators will not be provided; so, bring your own calculators.
8. Any dictionary or commands document is not allowed in any format.
9. Judges will analyze performance. Verdict will be final and unobjectionable.
10. Use of any illegal resource during competition (e.g. USB, mobile, internet etc.) will cause in elimination of that team.
11. Only registered candidates will be allowed.
12. Keep saving your task during competition. No extra time will be provided in case of light off or PC shutdown by any reason.
13. If the PC gets hanged due to any reason. Inform to the invigilating team instantly.
14. Ensure yourself that AutoCAD software is correctly installed and working well before starting the competition. No excuses will be entertained during competition.
15. Mobile phones should be switched off during the competition.
16. Candidates must not communicate or disturb other teams during the Competition.
17. Candidates may not leave competition while the competition is in progress due to any reason.

Resource provided

All the basic stationary (rough sheet, pencil, pen) and one computer per team, etc. will be provided for designing. Calculator will NOT be provided.

Robo Race

An autonomous robot that follows a track without interference from any participant.

Team Size: Maximum 3 members

Task 1: Make an autonomous line following robot.

Task 2: Robot should solve the arena in minimum time possible to reach the finish point.

Task 3: Robot is compulsive to follow the white line. Arena: -The white line is of predefined width and the background of arena is black.

Number of rounds: 3, 50% team will be eliminated after round 2 on the bases of the score of round 1 and round 2.

Robot Specifications

1. Each team is allowed to have only one robot.
2. The machine must fit within the dimensions of 30cm x 30cm x 30cm (l x b x h).
3. The robot must use only on-board power supply. No external off-board power supply is allowed. Each team shall prepare its own power supply for all its machines.
4. The robot must be fully autonomous with all powering and motoring mechanisms self-contained.
5. Participants are not permitted to enter any information into the robot during the event. The robot must not communicate with any wireless device also.
6. The machine must be stable and must stand on its own at the beginning of the race when put in the starting zone.
7. The method of propulsion is at the discretion of the builder, provided that the power source is non-polluting.
8. In case the machine is using a non-electric power supply, kindly get it approved from the organizers beforehand via email. Organizers are not responsible for inconvenience if approval is not sought.
9. During the run, the machine cannot expand itself provided. It is not allowed to leave anything behind or make any marks while traversing the grid.
10. The teams are allowed to use ready-made micro-controller boards/ready-made sensor kits.

Game Rules

1. Robots should follow the lines self autonomously to complete the race.
2. Only 1 member from the team is allowed to be near the arena while starting the Robot.
3. The starting procedure of the machine should be that of an ON/OFF switch, should be visible.
4. Robot is permitted to sense white lines.
5. Robots of each team will be not be allowed to test on the arena before an hour the competition start.
6. Robot is given 3 chances to restart in 1st round and 1 chance in final round.
7. The Robots are allowed to start on the signal of the judges.
8. During a restart, the machine will have to be restarted by putting it back on the starting point and turned on again on the signal of the judges.

General Rules

1. The machine is not allowed to leave anything behind while traversing the grid. It should not make any marks on the floor of the arena. Any machine found damaging the arena will be immediately disqualified.
2. Participants are not allowed to keep anything inside the arena other than the machine.
3. Laptops/personal computers are not allowed near the arena. Other Wi-Fi, Bluetooth, etc. devices must be switched off. The organizers hold the right to check for these devices and their usage.
4. The contest judges may stop any robot at any time if they feel that it is performing, or is about to perform, any action that is dangerous or hazardous to people or equipment. No robot is allowed to use any flammable, combustible, explosive or potentially dangerous processes.
5. In case of any disputes / discrepancies, the organizers' decision will be final and binding. The organizers reserve the rights to change any or all of the above rules as they deem fit. Change in rules, if any will be notified to the registered teams. Other Details Team can consist of a maximum of 3 participants. Students from different educational institutes can form a team as well. All participants should be enrolled in a university or institute as students.

Robo War

Team size: Maximum 3 members

Task: Make a manually RC controlled Robot. The robot has to destroy, flap upside down, or push the opponent's robot out of the court.

Robot Specifications

1. Each team is allowed to have only one robot.
2. The robot controlling systems should be wireless.
3. Frequency of each robot should be unique to avoid interference.
4. Teams should notify their robot's frequency as soon as possible so that it should be reserved and not allotted to any other team.
5. The robot should fit in a volume of 18.75 with dimension 3 ft x 2.5 ft x 2.5 ft (lxbxh) when at rest position. (in the maximum operational expandable position)
6. The weight of the robot should not exceed 25 kg. (i.e. with all weapons loaded)
7. The robot may fold and unfold itself to follow the dimension rules.
8. The robot must use only on-board power supply.
9. No external off-board power supply is allowed.
10. Each team shall prepare its own power supply for all its machines.
11. Robot is allowed to take power from a DC source with a rating not more than 48 volts. Only dry-type sealed batteries are allowed i.e. Li-Poly, Ni-MH, Li-ion, and other maintenance free sealed packed batteries.
12. Human operators are not permitted to enter the Court once the competition has started. They need to operate the robot from outside the court using their remote controls.
13. The teams are allowed to use ready-made micro-controller boards/ready-made sensor kits.
14. Weapons must remain connected to the machine at all times during operation, i.e. if any weapon is released out from the body of the robot either intentionally or unintentionally, the robot will be immediately disqualified upon the decision of the judges' panel.
15. Any weapon that can pose injury risk to the spectators is not allowed e.g. loosely fitted spinning weapons etc. The teams which such a robot will be asked to remove such a weapon before the contest. If they fail to remove the weapon, the team will be disqualified.

Game Rules

1. The robot has to destroy, flap upside down, or push the opponent's robot out of the court, in order to win a combat.
2. Two robots at a time will compete against each other.
3. The first round will be the group stages. First round is consisted of league matches. Where pools are made by the organizers according to the number of teams.
4. Maximum three minutes will be given for each combat.
5. During the combat number of hits will be counted by the organizers. The robot with most hits in the specified time will be declared as the winner of the combat.
6. If the robot has destroyed, flapped upside down, or pushed the opponent's robot out of the court the robot will be considered knocked out of the combat.
7. Each robot will earn three points on winning each game during the combat.
8. Round two will be played on the knock out bases.
9. The teams that qualify for the next round are not allowed to take their bots home with them. They will be kept in the university till the second round on the second day.

General Rules

1. The machine is not allowed to leave anything behind while traversing the grid.
2. Laptops/personal computers are not allowed near the arena. Other Wi-Fi, Bluetooth, etc. devices must be switched off.
3. The organizers hold the right to check for these devices and their usage.
4. The contest judges may stop any robot at any time if they feel that it is performing, or is about to perform, any action that is dangerous or hazardous to people or equipment.
5. No robot is allowed to use any flammable, combustible, explosive or potentially dangerous processes. In case of any disputes / discrepancies, the organizers decision will be final and binding.
6. Moreover, any attempt to exploit the above given rules in lieu of bad will may disqualify such a team upon the decision of the administration of the event.
7. The organizers reserve the rights to change any or all of the above rules as they deem fit.

Soldering Competition

ProCom 2016 invites you to the biggest event of Pakistan to test your soldering skills and enhance it.

Rounds

There three are rounds in soldering competition:

Round 1: Soldering of discrete Component

You will be given 30 minutes for this competition in which you have to solder discrete component and the schematic will be given on which they have to sold them.

Round2: Soldering of IC

You will be given 45 minutes for this competition in which you have to solder integrated IC and the schematic will be given on which they have to sold them.

Round3: Soldering of Microcontroller

You will be given 60 minutes for this competition in which you have to solder microcontroller and the schematic will be given on which they have to sold them.

Winning Criteria

1. Winner will be chosen on the basis of three rounds performance.
2. The circuits will be judged on following criteria:
 - Logic and implementation
 - Time consumed in making the circuit
 - Circuit complexity & stability
 - Working condition of circuit

Rules and Regulations

1. Minimum 1 and maximum 2 members are allowed in each team and it will be a 1-day competition.
2. Candidates must appear at the competition room at least twenty minutes before the commencement of the competition.
3. Late comers will not be given extra time.
4. Current university, college or institution card is necessary.
5. Competition head/EE coordinator has the right to disqualify any team in any harm case.
6. Judges will analyze performance. Verdict will be final and unobjectionable.
7. Only registered candidates will be allowed.
8. Mobile phones should be switched off during the competition.
9. Candidates must not communicate or disturb other teams during the competition.
10. Candidates may not leave competition while the competition is in progress due to any reason.

Resources provided

Soldering iron, solder, electronic components, and Vero board will be provided.