# FETEX'15

**By:**
**Faculty of Engineering & Technology IIUI**

# Event Book

**Faculty of Engineering & Technology, International Islamic University Islamabad** is going to organize an event named **FETEX.** This event will comprise of different, Engineering, Social and Professional competitions. Teams and individual participants are being invited from different universities, colleges and schools all over Pakistan, to participate and compete amongst the best young brains. Such competitions are very helpful for young students, as they get a chance to interact with other brightest of minds. **The two day event is scheduled to be held from 27th to 28th April 2015**. We invite your institute to participate in this event. You are requested to notify this for the information of all of your students.

Details of various competitions are attached herewith. This time IEEE IIUI Student Branch is collaborative partner in FETEX'15. Students wishing to participate in these competitions are required to register before **15th April 2015**. Participants should submit appropriate duly filled registration form for the event online in which they wish to participate. Registration fee is different for different events. A definite cash amount will be awarded to the winning teams/individuals.

All registrations should be done online, for details, contact at the following address:

Engr. Adil Farooq (Supervisor FETEX 2015)
+92-322-5360038
Department of Electronics Engineering,
Faculty of Engineering & Technology,
International Islamic University, Islamabad

Engr. Tila Muhammad (Counselor IEEE IIUI Student Branch)
tila.muhammad@iiu.edu.pk
Department of Electronics Engineering,
Faculty of Engineering & Technology,
International Islamic University, Islamabad

All Participants are required to bring along a proof of identity, preferably institution's ID card or their National ID Card along. Participants are expected to bear all of their travel expenses. Participants who wish to avail university accommodation should clearly mention it on the registration form.

For further information, visit our website, www.iiu.edu.pk/FETEX
Or contact
Mian Junaid Manzoor
Phone: + 92-331-6758817
Syed Adil Zahoor
Phone: +92-323-4675652
Or email: fetex.info@gmail.com

# GENERAL INSTRUCTIONS

1. Last date for registration is **15<sup>th</sup> April 2015**.
2. Only **Male** student participants are allowed.
3. If **accommodation** is required, please notify on the registration form.
4. Accommodation will be provided during the days of the events only. Participants are requested to make arrangements for accommodation if stay is prolonged.
5. Participants of all competitions are required to be present at the stated venue hall on time, as informed by the respective organizing team.
6. Participants must go through the rules of their respective competition before filling the form.
7. Certificates for all participants and shields for winners will be provided at event closing ceremony.
8. All the forms are available online and fee should be submitted.
9. Registration fee is non-refundable.
10. Any modification/amendment in stated rules shall be constantly highlighted on the website. Individuals are encouraged to keep contact with the organizers.
11. General registration fee for all competitions is different for different events and is clearly mentioned with every event. Registration will be done online at www.iiu.edu.pk/FETEX
12. These rules can be changed if needed by the management.
13. Payment Method:

Payment of **FETEX'15** can be done by Ambassador.

Or Contact our Registration Team:

Usman Khan

Mobile: 0306 5516934

For further information, visit our website, www.iiu.edu.pk/FETEX
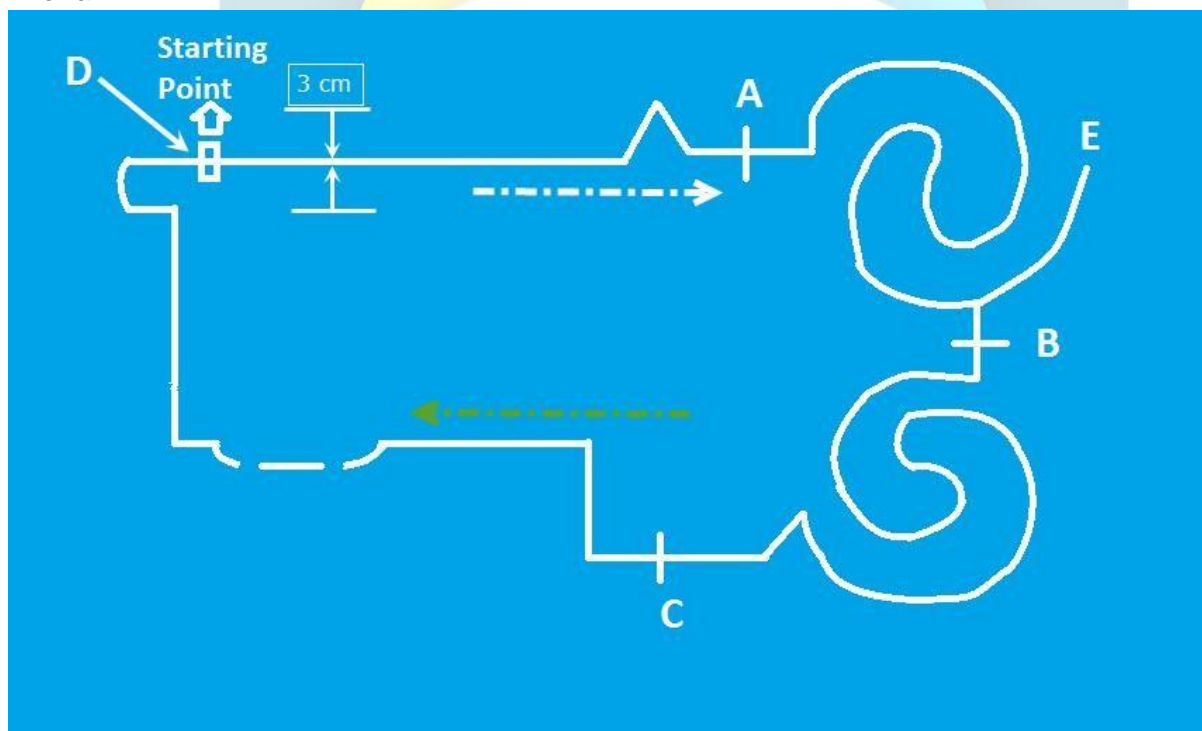
# TABLE OF CONTENTS

# EVENTS

## 1. Robotics Challenge
### A. Line Following

**Event Description:**
This event is comprised of designing a perfectly synchronized system of robots that perform according to the rules of the game played with an utmost precision on the standard arena.

**Arena:**



**Registration fee:**
Rs.1500/- per team

## LEGO/LOGIC RULES:

- School teams are only allowed with Lego Kit.
- They will complete the path from start D, passing from A to end at E
- Only 2 re-attempts are allowed, a robot going off the line for over 15 seconds will count a re-attempt.
- Arena is divided according to points
- From D-point to A-point = 25 points
- From A-point to E-point = 25 points

## INDIGNEOUS RULES:
- Use of IC is allowed

- Micro-Controller (8051, ATmega(AVR) , Arduino)
- All circuits should be self-made including senor array.
- ROBOT DIMENSIONS:  30cmx25cmx20cm (length x width x height)
- Once a robot has crossed the starting line it must remain fully autonomous, or it will be disqualified.
- Only 2 re-attempts are allowed, a robot going off the line for over 15 seconds will count a re-attempt.
- On third re-attempt there will be negative marking.
- A robot shall be deemed to have left the arena when all wheels, legs, or tracks have moved completely off the arena surface.
- Arena is divided according to points
- From D-point to A-point = 25 points
- From A-point to B-point = 25 points
- From B-point to C-point = 25 points
- From C-point to D-point =25 points
- If a robot goes off the line between starting point to B-point (white arrow) then it will start its re-attempt from starting point. If robot goes off the line between B-point to starting point (green arrow) then re-attempt will be from B-point.
- White line is 3cm in width.
- Round 1 is from starting point to A to B to C to D
- Round 2 is from D to C to B to A to starting point
- Round 3 is from E to B to C to D
- Qualifying teams will proceed to the next round.
- All teams will have to give 2-3 minutes presentation in front of jury and submit a brief report of their robot before start of competition. [5 + 5= 10] Marks bonus will be awarded.

**Eligibility:**

All students with a valid identity card of their respective educational institutes are eligible to participate in the event.

**Team Strength:**
4 Members

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisors:** Engr. Adil Farooq      adil.farooq@iiu.edu.pk

**Student organizers:** Ishfan Minhas, Bilal Tariq and Muzzamil

## B. Robo War

**Event Description:**

If you love the smell of burning circuitry, feel giddy at the sight of twisted metal and just want to go on an all-out Rampage, FETEX'15 Robo War is the place for you!

It is our aim to advance the sports of combat robotics in Pakistan. We aim to encourage the students to turn their dream machine into solid metal and put it on the  line and in the zone to build an ultimate destruction machine.

They say knowledge is power, and now is the time to put this power to some destructive use! Use your technical know how to build the meanest killing machine possible and go head to head with others. So are you man enough to survive? Can you rip your way through the competition? Join FETEX'15 Robo War and find out!

**Registration fee:**
Rs.2500/- per team

**Rules & Regulations:**
- Each team will consist of 3 to 4 members
- Match duration will be of 5-8 minutes.
- Contestant must knock out or disable the other opponent.
- If neither happens, the robot taking the least damage will be declared the winner. Points will be awarded for pushing the opponent into the grinder
- Points will be given for pushing the opponent on the boundary wall of arena
- All teams will have to give 2-3 minutes presentation in front of jury and submit a brief report of their robot before start of competition. [5 + 5= 10] Marks bonus will be awarded.

**Design Specifications:**
- Robot should not exceed the dimension of 2.5ft x 2.5ft x2.5ft (LxWxH).
  Robot weight should not exceed above 35kg.
- A maximum of 36 volts DC will be allowed.
  Robot should be radio controlled.
- Robot should be 3cm above the ground level.

**Weapons:**

| ALLOWED | PROHIBITED |
|---|---|
| Spinner | Flammable weapons |
| Wedge | Radio jamming |
| Lifter / flipper | Liquid discharge |
| Overhead hammer / axe | Lasers |
| Rammer | Hydraulics |

**Arena:**
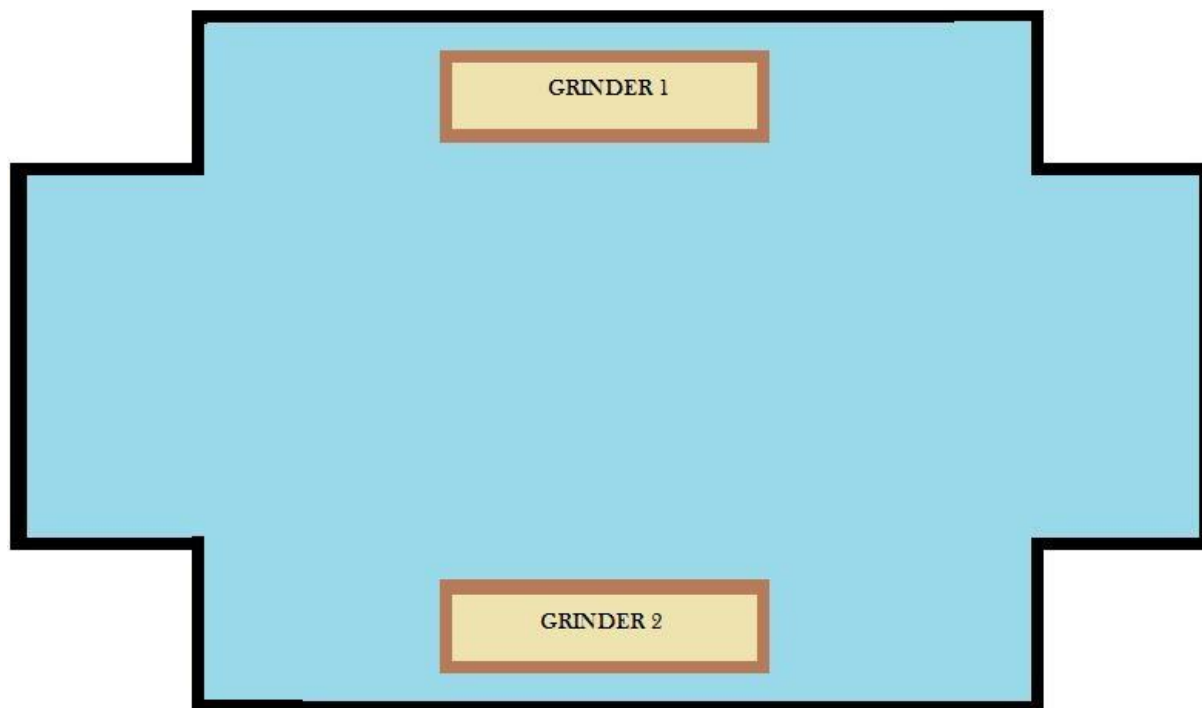


WIDTHOF ARENA = 20ft
LENGTH OF ARENA= 25ft

**Eligibility:**
All students with a valid identity card of their respective educational institutes are eligible to participate in the event.

**Team Strength:**
3-4 members

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisors:** Engr. Adil Farooq    adil.farooq@iiu.edu.pk
**Student organizers:** Omer Baig and Arslan Ahmed

## 2. Speed Wiring Competition

**Event Description:**

This competition will test the skills of circuit optimization, neatness and speed of wiring the circuit. Basic circuit analysis techniques and logic designing methods will be tested. In this competition, a circuit diagram will be provided to the participants, and they will have to implement it on the breadboard. Team with the highest score according to the judgment criteria will be declared winner.

**Registration fee:**
Rs.500/- team

**Rules & Regulations:**
- Maximum duration of the contest will be 2 hours.
- Members should be a student of a college or university.
- Conversation and sharing of any material between teams is strictly prohibited.
- Circuit schematics will be provided on the spot.
- Datasheets for the IC's, supplies, components and wires will be provided to the participants.
- Once a team announces the completion of their circuit, time will be noted and team would have to leave the table.
- Any helping material, if found, or any cheating attempt will lead to disqualification.
- Decision of the jury would be final and the participants cannot appeal against it.
- FETEX management reserves the right to disqualify a team, in case of violation the above rules, using unfair means, misbehaving, creating disturbance, or showing non-serious attitude during contest.
- FETEX management reserves the right to modify the above rules and regulations without prior notice. However, such changes will be notified to the teams before start of competition.

**Eligibility:**
Students from any college or university are eligible to take part in this event.

**Team Strength:**
2- 3 members

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisors:** Engr. Wasim Khan    Wasim.khan@iiu.edu.pk
**Student organizers:** Mafaz Ahmad and Shahbaz Ali

### 3. MATLAB Guru

**Event Description:**

This competition will test the skills of MATLAB. Basic computation techniques and algorithm designing methods will be tested. In this competition, a task will be given to the teams by the judges. Team with the highest score according to the judgment criteria will be declared winner.

**Registration fee:**
Rs.500 /- per team

**Rules & Regulations:**
1. Each team is allowed to use only **one PC**.
2. Each team can bring only 1 blank page and a pen.
3. Use of mobile phones, internet, and/or books during competition is **not allowed**.
4. No collaboration with other teams is allowed.
5. Incomplete solution will be marked with immediate 30 points loss in that solution.
6. Team with maximum number of correctly solved problems will be winner.
7. The team with maximum points will be declared winner.
8. The decision of the judges will be last and irrevocable.
9. Score will base upon
   - Number of tasks successfully completed.
   - Logic (How a team approached to a specific problem!),
   - Program Length,
   - Execution Time,
   - Complete Solution (Incomplete Solution will also be marked.).
   - The problems will be judged under the intense analysis of expert judges.

**Eligibility:**
Participants should know MATLAB codes related to any subject of electronics (e.g. signal processing, controls, math's, any logic, plots)

**Team Strength:**
1- 2 members

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisor:** Engr. Nauman Anwar          nauman.anwar@iiu.edu.pk
**Student organizers:** Zeeshan Ali, Umer Farooq and Muhammad Waqas Shah

## 4. Presentation Skills

**Event Description:**

Soft skills are personal attributes that enhance an individual's interactions, job performance and career prospects. Unlike hard skills, which are about a person's skill set and ability to perform a certain type of task or activity, soft skills relate to a person's ability to interact effectively with coworkers and customers and are broadly applicable both in and outside the workplace. Keeping in mind the importance of above, FETEX'15 includes Presentation Skills Competition.

**Registration fee:**
Rs.300/- per team

**Rules & Regulations:**
Only one participant is allowed in this event.

**Topics:**
- Role of Electronic Engineer in development of Pakistan.
- Role of Media in Current Pakistan Situation.
- Effectiveness of Engineering in Pakistan.

**Eligibility:**
Students from any college or university are eligible to take part in this event.

**Marks Distribution:**
- Total Marks (15)
- Content of Presentation (5)
- Communication Skills (5)
- Preparation / Questions & Answers (5)
- Time Allowed:    Maximum 15 minutes only
- PowerPoint Slides:
- Formal Dressing (2 piece or 3 piece)

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisor:** Engr. Umer Javed        umer.javed@iiu.edu.pk
**Student organizers:** Hassan Nawaz and Arsalan Ali

## 5. Micro Controller Interfacing

**Event Description:**

A competition will be held between interested participants. Participants will be asked to develop an interface application in C/C++ language for microcontroller and exhibit required functionality within a specified time limit.

**Registration fee:**
Rs.500/- per team

**Team Strength:**
2-3 members

**Methodology:**

- Each team has to perform two tasks:
- Microcontroller programming and simulation using Proteus.
- Microcontroller programming, simulation in Proteus and Hardware
- Functional verification.

**Competition Arrangements**

### A. Hardware

- Arrangements will be done in DLD Lab, DEE
- Ten workstations will be arranged
- Each workstation will consist of:
  - ❖ 1x Microcontroller circuit board/kit
  - ❖ 1x Breadboard
  - ❖ 1x Logic design trainer
  - ❖ 1x Power supply (5V dc)
  - ❖ 1x Set of connecting wires

### B. Software
- Proteus
- Keil U-vision
- Genius540 (G540 Programmer Software)

### C. Documents
- Register details.
- Pin diagram.
- Bring your own book (Optional).
- Bring sample codes (in printed form).
- A writing pad with lead pencil, eraser and sharpener etc.

### D. Time Allowed
- 1.5 hrs.

### E. Evaluation Criteria
- Operational (Hardware)
- Operational (Software)

- Programming approach
- Code simplicity/compactness

- **Rules**
- Only two participants per team are allowed
- Every participant must be undergraduate
- You are allowed to bring book with you but use to electronic material (like USB) is not allowed.
- The programming language is C/C++ compiler
- The required equipment will be provided to you in the lab.
- Damaging any equipment will result in immediate disqualification of the team without warning.

**Note**: It is directed to bring your own laptops with required installed software.

### Prize for winner:
- Prize Money
- Certificate
- Shield

**Faculty Supervisor:** Engr. Muhammad Muzammil          m.muzammil@iiu.edu.pk
**Student organizers:** Tariq Inayat and Jawad Mehmood Butt

## 6. Math's Gauge

**Event Description:**

This competition gives students fair chance to show their Mathematics skills which they are starting to learn from 1st class of their education career. Only BS level students are eligible. Students from all departments will be invited especially Electronic Engineering, Civil engineering Mechanical Engineering, Mathematics, Physics, Computer science, and Software engineering.

**Registration fee:**
Rs.300/- per member in team

**Team Strength:**
2 members

**Event Details:**
Event has 3 rounds.

| | |
|---|---|
| 1st round has 30 MCQ's | [30 min] |
| 2nd has 10 Short Questions | [20 min] |
| 3rd round has 5 long Questions | [15 min] |

**Shortlisting:**

**ROUND 1** Correct answer= **4 marks**, wrong answer **= -1** marks from
1st round, 50% teams will be qualified for 2nd round

**ROUND 2 &3:** No grace/attempt marks will be given in short question and long questions from 2nd round, 50% teams will be selected for 3rd round.
3rd Round will decide winner and Runner up.

**Calculators are not allowed.**

Required stationary will be provided like pen and papers.

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisor:** Engr. Muhammad Fahad Munir        fahad.munir@iiu.edu.pk
**Student organizers:** Saddaqat Ali, Jawad Mehmood Butt and Shahzeb Shah

## 7. Quiz Competition

**Event Description:**

The event will comprise of both Technical Questions and General knowledge.

**Registration fee:**
Rs.400/- per member in team

**Rules & Regulations:**
- Competition will comprise of three rounds.
- *WRITTEN TEST* (Basic Mathematical and Science Knowledge, Spatial (Shapes/Figures reading), Identification of nature/class of objects, Analogy/Logic, Common sense)
- Visual test (Pictorial Similarities in two pictures or questioning from videos)
- General Knowledge
- Participants will be briefed regarding the rules once before the start of each competition round.
- Top 4 teams of first round will qualify for rest of rounds
- Cheating, creation of disturbance will straight forward lead to disqualification at that stage.
- The results decided by evaluators/judges will full and final
- FETEX management reserves the right to modify the above rules and regulations without prior notice. However, such changes will be notified to the teams before start of competition.

**Eligibility:**
Students from any college or university are eligible to take part in this event.

**Team Strength:**
2- 3 members

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisor:** Engr. Ubaid Umer      ubaid.umer@iiu.edu.pk

**Student organizers:** Tariq Inayat and Rahmatullah

## 8. E-Gaming

### a. Counter Strike 1.6

**Registration fee:**
Rs.500 /- per team
Over time period: Rs.1000/-

**Game Format:**

| | |
|---|---|
| Competition Method: | 4 vs. 4 |
| Players: | 8 total (4 on each team) |
| Rounds: | 3rounds for regular play |
| Max Rounds | 3 rounds as Offense, and 3 rounds as Defense per |
| Format: | team until the victory condition is met |
| Victory | The first team to win 3rounds in regular or the team |
| Condition: | that wins the overtime period. |
| Buy time: | 15` seconds |
| Freeze time: | 30 seconds |
| C4 Timer: | 90 seconds |

Punishment for any violation will be at the sole discretion of the administrators.

**Prize for winner:**
- Prize Money
- Certificate
- Shield

### b. NFS Most Wanted

**Registration fee:**
Rs.250/team

**General provisions:**

- Game Version: NFS Most Wanted 1.3 General
- Competition Method: 1 vs. 1
- Game Type: Circuit
- Host, client will be announced before the match or decided by coin toss. (Only for LAN Tournament)
- Other controllers, Steering Wheel allowed
- At the end of each match, players must maintain the final screens and receive confirmation from a referee.
- Winning a race: The winner of a race is the first player to complete 5 laps of the circuit course and cross the finish line.
- Graphic settings such as motion blur¡± can be set using external utilities. The use of Porsche GT and BMW M3 are NOT allowed.
- Two warnings constitute being disqualified from the tournament.

**Prize for winner:**
- Prize Money
- Certificate
- Shield

### C. FIFA

**Registration fee:**
Rs. 250/- per member in team

**General provisions:**
- Competition Method: 1 vs. 1
- Game Mode: International and Club
- Arriving late for a scheduled match may result in a forfeit at the discretion of the Chief Referee.

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisor:** Engr. Ahsan Baig
**Student organizers:** Zaryab Khalil and team

## 9. Indoor & Outdoor Gaming
### a. Luddo

**Registration fee:**
Rs.150/- per team

**General provisions:**
Knockout competition
The first person to move all 4 pieces into the home triangle wins

**Prize for winner:**
- Prize Money
- Certificate
- Shield

### b. Table Tennis

**Registration fee:**
Rs.300/- for doubles
Rs.200/- for singles

**General provisions:**
Knockout competition
Standard rules

**Prize for winner:**
- Prize Money
- Certificate
- Shield

### c. Mini Football

**Registration fee:**
Rs.500/- per team

**General provisions:**
- Five players per team with 2 substitutes. Knock out stage.
- Total time per match is 30 mints i-e 15 mins per half.
- In case of draw decision will be made on penalties Referee decision will be final.
- Long shoots are not allowed.
- In case of misbehave cards will be given.
- In case of late arrival points will be given to opponents.

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Student Organizer: Haris Ahmed**

### d. Mini Cricket

**Registration fee:**
Rs.500 /- per team

**General provisions:**
- Knockout Round > Semi Finals > Final Max 5 Players / Team
- 4 Overs / Innings
- Over Limit = 1 Over / Player Over-throw Run is allowed
- No ball, Wide ball, Fast bowling = 1 Run 5 Overs / Innings in Final Match
- Umpire's decision is final, No arguing with Umpires

**Prize for winner:**
- Prize Money
- Certificate
- Shield

**Faculty Supervisor:** Engr. Hassaan & Engr. Ahsan Baig
**Student organizers:** M. Awais Hussain, Tayyeb Ali and team

## Workshop: Hands on Practice Using Arduino

**1ˢᵗ Session**
- What is Arduino?
- How we use Arduino?
- Some basics of electronics essential before using the Arduino. Structure of Arduino
- Programing basic of Arduino C++ vs Arduino
- Some example of Arduino with basic Programing
- Sufficient knowledge about sensors before interfacing with Arduino Use the Virtually Arduino in Proteus before implement of hardware Handle the Analog input/output and Digital input/output

(15 min break)

**2ⁿᵈsession**
Conditional loops
User interfacing with system to Arduino
Some practical example of conditional loops
Interfacing with Temperature sensor and show on system output of sensor Interfacing of LCD 1602 with Arduino
By displaying the sensor
Keyboard interfacing with Arduino 4x4 matrix keyboard A small project from what we learn till now

**3ʳᵈsession**

Motor control and interfacing GAS sensor interfacing
Bluetooth interfacing with mobile control any devices IR module interfacing
Figure Print Sensor module sensor
LDR interfacing

Ultra sonic sensor with Arduino A small project.

**List of module:**
Arduino Uno R3, Bluetooth Module, Temperature sensor LM35, IR module, Motor with Module, LDR, Gas Sensor, LCD 16x2, Keypad 4x4 Matrix, Figure print module, Pot meter, LEDS

## Note:

Those groups will be appreciate who bring their Arduino UNO kit and sensor they are interested in workshop.

**Faculty Supervisor:** Engr. Muhammad Fahad Munir        fahad.munir@iiu.edu.pk
**Resource Person:** Babar Sultan        Babar.sultan@seecs.edu.pk
**Student organizers**: Gibran and Qazi Tehmas

# For Further Details

**Visit**     : www.iiu.edu.pk/FETEX

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