ELECTROMAG

Volume - 3

WHAT IS A.I.?

ARDUINO

MAGAZINE BY DEPARTMENT OF ECE

2016 - 2017

PROGRAMME EDUCATIONAL OBJECTIVES

PEO1: Employability: Our Graduates shall be suitably employed in allied industries/services with professional competency and knowledge of modern tools.

PEO2: Higher Education: Our Graduates shall be capable to pursue higher studies/research in the field of engineering and management.

PEO3: Entrepreneurship: Our Graduates shall be prepared for a successful career by meeting ever increasing demands required by Electronics and communication profession and enable them to become an entrepreneur.

PEO4: Ethical: Our Graduates cultivate professional and ethical attitudes with effective communication skills, team work and multidisciplinary approach related to engineering issues.

PROGRAMME OUTCOMES

PO1: Engineering knowledge: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

PO2: Problem analysis: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

PO3: Design/development of solutions: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal and environmental considerations.

PO4: Conduct investigations of complex problems: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

PO5: Modern tool usage: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

PO6: The engineer and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

PO7: Environment and sustainability: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

PO8: Ethics: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

PO9: Individual and team work: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

PO10: Communication: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

PO11: Project management and finance: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PO12: Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

PROGRAMME SPECIFIC OUTCOMES (PSOS)

PSO1: Products Development: Use modern tools to design subsystems for simple applications in Embedded Systems and VLSI.

PSO2: Design Thinking: Apply engineering concepts to find solutions in the fields of Communications, Signal/Image Processing.

ABOUT THE DEPARTMENT

The Department was established in the year 2008 focusing to develop the skills of modern youth in the field of Electronics and Communication Engineering. Adequate emphasis is given to electronic design using modern teaching methodologies. Emphasis is also given to the development of soft and hard skills. Ulmost care is taken in the perspective of imparting more practical knowledge to the student's community in the field of Electronics and Communication.

VISION

The department aspires to produce dexterous professionals, competent Researchers and entrepreneurial leaders for t he benevolence of the society.

MISSION

Higher Order Thinking: To invoke higher order thinking among the students by means of comprehensive teaching and learning pro-cess.

Competency: To provide training on cutting-edge technologies to improve the competency of the students.

Continuous learning: To promote innovation through providing state of-art facilities and active industry institute interaction.

Entrepreneurship: To facilitate the students to improve their leadership and entrepreneurship skills with ethical values.

ARDUINO MICROCONTROLLERS

By Cyril antony. J

IIIrd year

I was surprised to see a twelve year old boy giving life to his electronic gadgets. He was trying his hands on building his own creative toys which involved hard electronics and software skills. My zeal was on its peak to know the magical power inside the young chap. How did he understand the concepts of electronics so early? How did he develop the software? Anxiously I went down and asked him about the magic he was doing. The answer was "ARDUINO".

What is Arduino?

Arduino is an open source electronics platform accompanied with a hardware and software to design, develop and test complex electronics prototypes and products. The hardware consists of a microcontroller with other electronic componentswhich can be programmed using the software to do almost any task. The simplicity of the Arduino language makes it very easy for almost everyone who has an interest in electronics to write programs without the understanding of complex algorithms or codes.

Arduino is intended for an artist, tinker, designer or anyone, interested in playing with electronics without the knowhow of complex electronics and programming skills. Arduino is an excellent designed open source platform. It has specially designed boards which can be programmed using the Ardunio Programming Language (APL).

The presence of Arduino is not only spreading between hobbyists, but it has also expanded its roots in industries and used by experts for making prototypes of commercial products. Arduino takes off the efforts required in complex coding and designing hardware.

Concept of Arduino

The root of Arduino goes deep down to the development of Processing Language by MIT researchers. Processing language is an open source language designed to introduce the software development environment for the artistic people without the need of deep knowledge of programming of algorithms. Processing is based on java.

In early year of 21st century, designing an electronics gadget was nearly impossible for a common man. The requirement of specific skill set and hefty prices of software and hardware created a full stop in the path of their creativity.

In year 2003 Hernando Barragan, a programmer developed an open source electronics development platform with software IDE, where anyone with a small knowledge in electronics and programming could use his project to give wings to their creativity. His focus was to reduce the burden of complexity in designing electronics hardware and software. The project was named as Wiring. The software IDE of the Wiring used processing language to write the codes.

As the program written in C\C++ is named as Project, in the same way the code written in Wiring (even in Processing and Arduino) is termed as Sketch. The name sketch gives a familiar look for an artist.
The principle idea behind Wiring is that one can make the sketch of their idea on Wiring software and implement it using specially designed Wiring board. You need to write a few lines of codes on the software IDE and then download the program to the onboard microcontroller to see the output.

Wiring has predefined libraries to make the programming language easy. Arduino uses these libraries. The predefined libraries are written in C and C++. One can even write his software in C\C++ and use them on Wiring boards. The difference between writing a program in C/C++ and Wiring is that the Wiring Application Programmable Interface (API) has simplified programming style and the user doesn't require detailed knowledge of the concepts like classes, objects, pointers, etc.

The basic difference between the Processing and the Wiring is that the Processing is use to write the program which can be used on other computers while Wiring program is used on microcontrollers.

ARTIFICIAL INTELLIGENCE

Prepared by
SHARMILA. G
Asst. prof.
ECE- dept.

The modern definition of artificial intelligence (or AI) is "the study and design of intelligent agents" where an intelligent agent is a system that perceives its environment and takes actions which maximizes its chances of success.

Learning is based on empirical data and is associated with non-symbolic AI, scruffy AI and soft computing. Subjects in computational intelligence as defined by IEEE Computational Intelligence Society mainly include: Neural networks: trainable systems with very strong pattern recognition capabilities.

Evolutionary computation:

applies biologically inspired concepts such as populations, mutation and survival of the fittest to generate increasingly better solutions to the problem. These methods most notably divide into evolutionary algorithms (e.g., genetic algorithms) and swarm intelligence (e.g., ant algorithms).

With hybrid intelligent systems, attempts are made to combine these two group Expert inference rules can be generated through neural network or production rules from statistical learning such as in ACT-R or CLARION. It is thought that the human brain uses multiple techniques to both formulate and cross-check results.

Thus, systems integration is seen as promising and perhaps necessary for true AI, especially the integration of symbolic and connectionist models.

Artificial intelligence is a rapidly emerging technology that has the potential to change our everyday lives with a scope and speed that humankind has never experienced before. Some well-known technology leaders such as Tesla architect Elon Musk consider AI a potential threat to humanity and have pushed for its regulation "before it's too late"—an alarmist statement that confuses AI science with science fiction.

John McCarthy, who coined the term in 1956, defines it as "the science and engineering of making intelligent machines."Other names for the field have been proposed, such as computational intelligence, synthetic intelligence or computational rationality.

The term artificial intelligence is also used to describe a property of machines or programs: the intelligence that the system demonstrates.

AI research uses tools and insights from many fields, including computer science, psychology, philosophy, neuroscience, cognitive science, linguistics, operations research, economics, control theory, probability, optimization and logic.

AI research also overlaps with tasks such as robotics, control systems, scheduling, data mining, logistics, speech recognition, facial recognition and many others.

Computational intelligence Computational intelligence involves iterative development or learning.

An AI system:
Must always respect the same laws that apply to its creators and operators;

Must always disclose that it is not human whenever it interacts with another entity;

Should never retain or share confidential information without explicit approval from the source.

Art Works by our proud students

sketch by
Raajasri. G
3rd year – ece

sketch by
Suganthi
3rd year – ece

sketch by
Shruthi. R
2nd year – ece

பெண்பால்!!!

அலங்கார அகல் அவள்! அழகின் நகல் அவள்!

சாதனையும் சோதனையும் சமத்துவமாய் பழகியவள்

வெங்கலப் பாத்திரம் கொண்டு சமைப்பவளும் பெண்

விண்கலம் சென்று சாதிப்பவளும் பெண்

மனவலிமை கற்க வேண்டும் பெண்ணிடம் - அனைத்து

துறையிலும் பதித்தால் கால் தடம்

அறிவு புகட்டுவதில் பல்கலைக் கழகமாம்!

அறசெயல் புரிவதில் நல்வினைக் குழுமமாம்!

மலர் போன்றவள் மங்கை, மாசற்ற கங்கை - அவள்

மானத்தை பறிக்க முயல்கிறது சில முதலைகளின் கை

ஆடை ஒழுக்கம் வேண்டும் என்றீர்!

அறையில் முடங்க வேண்டும் என்றீர்!

பிறகு ஏனடா சிறுமியையும் சிதைத்துக் கொன்றீர்!

பாரதி வாழ்ந்த நாடா இது?

பாரதத்திற்கே தீ வைக்க தூண்டுது

பெண்ணுக்கு மறுபெயர் சக்தி

ஈடு இணையற்றது அவள் யுக்தி

தீயவனையும் திருத்துவாள் அன்பால் - பெண்

பாலினும் தூய்மையானது பெண்பால்!!!

எளிய பெண் பண்பு ஏரே!

இன்றே போல் உயர்ந்து ஈதே!

என வாழ்த்தும்

ச. மகாலட்சுமி

Riddles

1

I come one in a minute,
Twice in a moment,
But never in a thousand years.

2

I always run, but never walk.
I have a bed, but I don't sleep.
I have a mouth, but I don't eat.

3

When you put this in a heavy
wooden box, the box will
become lighter.

4

You hear my sound,
You feel me when I move,
But see me you never will.

5

I follow you all day long,
But when the night or rain comes,
I am all gone.

6

The more I dry,
The wetter I get.

7

I am very heavy,
But backwards, I'm not.

8

A cowboy rides into town on Friday.
He stays two days, then leaves on
Saturday. How can this be?

CROSS WORD

```
T S F K T C R L S S E E D S C C
S S F I W R R O L C M N Z U L H
I E A C Z G O E I E O E B O O O
G L B C E Z A T S A N A C I N L
O E R N A B L A A C G K I P E E
L R I K W U R R C T E M P T E R
O I C F O E A E E O E N E R G I
H T A P L I S L A R T D D U O C
C T T R L A P O C K E T B O O K
Y P I R A R C T J I W S E C D E
S R O R U J H I C M H A B D L T
P A N S L E V Y I N G C T E I I
D T S I M E Q N M A P O G E E E
Q N M E S S I L Y E X Y E A R R
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Maze

Mr. K. Baranichandran and Periyamohan Kumar of IV ECE have secured fourth place in TCS Testimony competition and got offer letter.

Offer Distribution in FRUITION'17

Loganathan and Anbarasan of IIIrd Year ECE B won the runner
of BANCQUEST 2K17 in Pondicherry University.

MVIT Technical club conducted YOUTH TALK

J.Cyril Antony and team of III ECE have conducted a two day Arduino workshop, Brain – O – Botics, for first year students

Antenna Design Contest

P.Agnetta and Vithya won Ist prize in Paper Presentation on
National Level Technical Symposium held at
Sri Ganesh College of Engineering and Technology

Shaleha Begum and Renuka of III-ECE B students conducted a "Motivation Lecture" in Goverment school, Ariyankuppam

FAREWALL CELEBRATION

Nadeesh of IIIrd ECE B got selected as one among the ten people all over the India in Photography contest conducted by National Geographic Channel

Certification from NPTEL Online cource

Elite

NPTEL Online Certification
(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

LAKSHMI PRIYA B

for successfully completing the course

DIGITAL IMAGE PROCESSING

with a consolidated score of **78** %

Online Assignments	23.75/25	Proctored Exam	54/75

Total number of candidates certified in this course: **281**

Prof. Anupam Basu
Chairman and Head
Centre for Educational Technology, IIT Kharagpur

Jul to Oct 2016
(30 hour course)

O. P. Sha
Prof. O. P. Sha
Dean
Continuing Education, IIT Kharagpur

Indian Institute of Technology Kharagpur

Certification from NPTEL Online cource

Elite

NPTEL Online Certification
(Funded by the Ministry of HRD, Govt. of India)

This certificate is awarded to

G SHARMILA

for successfully completing the course

DIGITAL IMAGE PROCESSING

with a consolidated score of **72** %

Online Assignments	23.75/25	Proctored Exam	48/75

Total number of candidates certified in this course: **281**

Prof. Anupam Basu
Chairman and Head
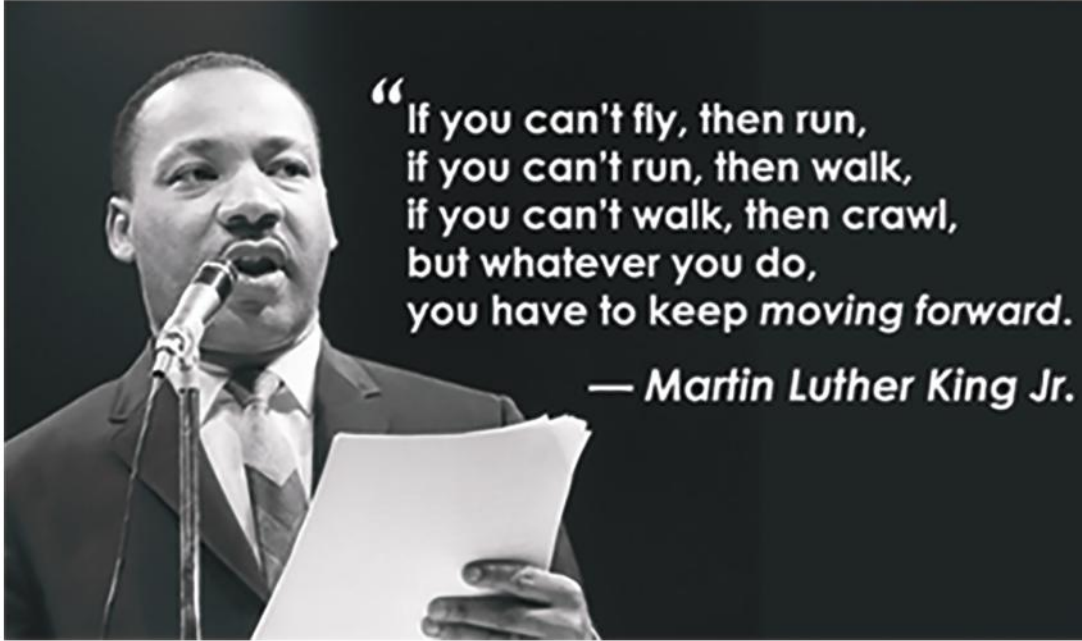Centre for Educational Technology, IIT Kharagpur

Jul to Oct 2016
(30 hour course)

O. P. Sha
Prof. O. P. Sha
Dean
Continuing Education, IIT Kharagpur

Indian Institute of Technology Kharagpur

யாதானும் நாடாமல் ஊராமால் என்னொருவன்
சாந்துணையுங் கல்லாத வாறு.

> "If you can't fly, then run,
> if you can't run, then walk,
> if you can't walk, then crawl,
> but whatever you do,
> you have to keep *moving forward*.
>
> — *Martin Luther King Jr.*

Knowing is not enough,
We must APPLY.
Willing is not enough,
We must DO.
- *Bruce Lee*

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MANAKULA VINAYAGAR INSTITUTE OF TECHNOLOGY
Kalitheerthalkuppam, Madagadipet, Puducherry-605 107