



**Bharath**  
INSTITUTE OF HIGHER EDUCATION AND RESEARCH

(Declared as deemed to be university under section 3 of UGC Act 1956, vide notification No.F.9-5/2000-U.3)

## SCHOOL OF ARTS

Date : 28.05.2018

### CIRCULAR

**Sub : Organising Value added Course: Hands on Training on Design of Humanoid Robot - Reg.**

With reference to the above mentioned subject, we bring it to your notice that School of Arts, Bharath Institute of Higher Education & Research is organising **Value added course "Hands on Training on Design of Humanoid Robot"**. The syllabus and registration form is enclosed below. The candidates those who are interested to join must fill the registration form and submit to the Course Coordinator Dr. K. E. Vivekanandan, Department of Biotechnology on or before 07.06.2018. The Registration form received after the mentioned date shall not be entertained under any circumstances.

Encl: A copy of Syllabus & Registration form

Copy To:

- 1.All HODs
- 2.Office File/ Notice Board
- 3.Course Coordinator

  
Dean Faculty of Arts & Science  
Bharath Institute of Higher Education & Research  
(Declared as Deemed to be University U/S 3 of UGC Act. 1956)  
Chennai-600 073. INDIA



# Bharath

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## SCHOOL OF ARTS

### Registration Form

### Value Added Course

Date : 29.05.2018

Name : DINAKARAN  
Reg. No. : U17M1034  
Gender : Male  
Department : Microbiology  
Year : 2017-20  
Contact No. : 76399 62913  
Email ID : dina.karan20@gmail.com  
Course Applied for : Hands on training on Design of Humanoid Robot.

  
Signature

## Bharath Institute of Higher Education &amp; Research

## School of Arts

## Students Registration List

Value Added Course: Hands on training on design of Humanoid Robot

S.NO	REG.NO	NAME OF THE CANDIDATE	DEPARTMENT
1	U17MI033	ASHVIN KUMAR	BSc-MICRO
2	U17MI034	DHINAKARAN	BSc-MICRO
3	U17MI035	BHUVANA SHREE	BSc-MICRO
4	U17MI036	SURYA	BSc-MICRO
5	U17MI037	SUNDAR	BSc-MICRO
6	U17MI038	MATHIMALA	BSc-MICRO
7	U17MI039	JAYA SENTHIL NATHAN	BSc-MICRO
8	U17MI041	JANNET	BSc-MICRO
9	U17BS005	MALARVIZHI R	BSc-BIOTECH
10	U17BS030	FIRDHOUSE A	BSc-BIOTECH
11	U17BS031	KAUSHIK MISTRY	BSc-BIOTECH
12	U17BS032	ARUNODHARAN L	BSc-BIOTECH
13	U17BS033	VENKATRAMANAN C	BSc-BIOTECH
14	U17BS034	SANDHIYA P	BSc-BIOTECH
15	U17PS027	PADMA PRIYA D	BSc-PHYSICS
16	U17PS028	DIVYA S	BSc-PHYSICS
17	U17PS029	JESINTHA N	BSc-PHYSICS
18	U17PS030	ARUN KAILASH K	BSc-PHYSICS
19	U17PS031	PRAVEENKUMAR P	BSc-PHYSICS
20	U17PS032	NITHISHRAJ G	BSc-PHYSICS
21	U17CI027	ANISHA M	BSc-CHE
22	U17CI028	SABITHA N	BSc-CHE
23	U17CI029	DEEPAK S	BSc-CHE
24	U17CI030	VALAI ESWARI M	BSc-CHE
25	U17CI031	CHITRA R	BSc-CHE
26	U17CI032	ANISH N	BSc-CHE
27	U17MA030	RANJITHA K	BSc-MATHS
28	U17MA031	S SAHANA	BSc-MATHS
29	U17MA032	JAMGADE ALPESH SANJAY	BSc-MATHS
30	U17MA033	DIVYA K	BSc-MATHS
31	U17MA034	GEETHANJALI M	BSc-MATHS
32	U17MA035	MATHIAZHAGAN S	BSc-MATHS
33	U17MA037	HEMACHANDRAN S	BSc-MATHS
34	U17SC044	PACHAIYAPPAN D	BSc-COMP
35	U17SC045	ESWAR M	BSc-COMP
36	U17SC047	M KEERTHIKHA	BSc-COMP
37	U17SC048	SATHISH S	BSc-COMP
38	U17SC049	AJITH K	BSc-COMP

39	U17SC050	SRIDHAR V	BSc-COMP
40	U17SC051	KAWTHAM M	BSc-COMP
41	U17SC052	DHANRAJ S	BSc-COMP
42	U17SC053	PREM KUMAR E	BSc-COMP
43	U17SC054	GOVINDHARAJI R	BSc-COMP
44	U17SC065	SUBASH V	BSc-COMP
45	U17SC066	JANARTHANAN K	BSc-COMP



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## SCHOOL OF ARTS

### Value Added Course

### Hands on training on design of Humanoid Robot

#### Syllabus

Introduction, history and scope of humanoid robots, State of the art, Kinematics.

Fundamentals of control of humanoids for locomotion and manipulation, biped locomotion kinematics and dynamics, modeling of the contact with the ground.

Motion synthesis for bipeds: optimization method, simplified models.

Passive robots: properties, stability analysis (Poincare map), extension

Control methods for postural stabilization, walking, and running: ZMP, online adaptation, Stability analysis, foot placement.

Humanoid: whole motion control (redundancy). Manipulation and grasping, under actuated hand.

Synthesization and control of bipedal gait; CPGs, ZMP, LGP, other motor behaviors.

Robot vision, Behavior based robotics.

Hardware for humanoid robots, Applications.

Robot interaction, Humanoid robots in society.

**Bharath Institute of Higher Education & Research**

**School of Arts**

**Course Time Table**

**Value Added Course: Hands on training on design of Humanoid Robot - Course Duration:30 Hrs**

<b>S.No</b>	<b>Date</b>	<b>Time</b>	<b>Hour</b>
1	11.06.2018	10 AM - 11 AM	1
2	17.06.2018	10 AM - 12 PM	2
3	23.06.2018	10 AM - 12 PM	2
4	24.06.2018	10 AM - 12 PM	2
5	30.06.2018	10 AM - 12 PM	2
6	01.07.2018	10 AM - 12 PM	2
7	07.07.2018	10 AM - 12 PM	2
8	08.07.2018	10 AM - 11 AM	1
9	15.07.2018	10 AM - 12 PM	2
10	21.07.2018	10 AM - 12 PM	2
11	22.07.2018	10 AM - 11 AM	1
12	28.07.2018	10 AM - 12 PM	2
13	29.07.2018	10 AM - 12 PM	2
14	04.08.2018	10 AM - 12 PM	2
15	05.08.2018	10 AM - 12 PM	2
16	11.08.2018	10 AM - 12 PM	2
17	12.08.2018	10 AM - 11 AM	1

**Bharath Institute of Higher Education & Research**  
**School of Arts**  
**Lesson Plan**

Value Added Course: Hands on training on design of Humanoid Robot			Course Duration:30 Hrs	
S.No	Date	Topic	Time	Hour
1	11.06.2018	Introduction, history and scope of humanoid robots	10 AM - 11 AM	1
2	17.06.2018	State of the art, Kinematics	10 AM - 12 PM	2
3	23.06.2018	Fundamentals of control of humanoids for locomotion and manipulation	10 AM - 12 PM	2
4	24.06.2018	Biped locomotion kinematics and dynamics	10 AM - 12 PM	2
5	30.06.2018	Modeling of the contact with the ground.	10 AM - 12 PM	2
6	01.07.2018	Motion synthesis for bipeds	10 AM - 12 PM	2
7	07.07.2018	Optimization method, simplified models.	10 AM - 12 PM	2
8	08.07.2018	Passive robots: properties	10 AM - 11 AM	1
9	15.07.2018	Stability analysis (Poincare map), extension	10 AM - 12 PM	2
10	21.07.2018	Control methods for postural stabilization, walking, and running	10 AM - 12 PM	2
11	22.07.2018	ZMP, online adaptation	10 AM - 11 AM	1
12	28.07.2018	Stability analysis, foot placement	10 AM - 12 PM	2
13	29.07.2018	Humanoid: whole motion control (redundancy).	10 AM - 12 PM	2
14	04.08.2018	Manipulation and grasping, under actuated hand.	10 AM - 12 PM	2
15	05.08.2018	Synthetization and control of bipedal gait	10 AM - 12 PM	2
16	11.08.2018	CPGs, ZMP, LGP, other motor behaviours, Robot vision	10 AM - 12 PM	2
17	12.08.2018	Behavior based robotics, Hardware for humanoid robots, Applications.	10 AM - 11 AM	1



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## SCHOOL OF ARTS

### Course Feedback Form

#### Value Added Course

Date: 12.08.18

Course Title: Hands on Training on Design of Humanoid Robot -

Name : SUNDAR  
Reg. No. : U17M1037  
Department : Microbiology

S.No.	Particulars	1	2	3	4	5
(1. Very Unsatisfied 2. Unsatisfied 3. Neutral 4. Satisfied 5. Very Satisfied )						
1.	Objectives of the course clear to you	✓				
2.	Course contents met with your expectations		✓			
3.	Lecture sequence was well planned	✓				
4.	Lectures were clear and easy to understand		✓			
5.	Teaching aids were effective	✓				
6.	Instructors encourage interaction and were helpful	✓				
7.	The level of the course	✓				
(1. Very poor 2. Poor 3. Average 4. Good 5. Excellent)						
8.	Overall rating of the course:	✓	2	3	4	5

Please give Suggestion for the improvement of the course:

  
Signature





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**School of Arts**

**CERTIFICATE OF PARTICIPATION**

This is to certify that

**MALARVIZHI.R**

**has participated in the Hands on training on design of Humanoid Robot,  
conducted by School of Arts, BIHER, from June 11, 2018 to August 12, 2018.**

**Dr. K.E. Vivekanandan**  
Course Co-ordinator

**Dr. L. Jeyanthi Rebecca**  
Convenor

**Dr. A. Muthukumaravel**  
Dean - Arts and Science

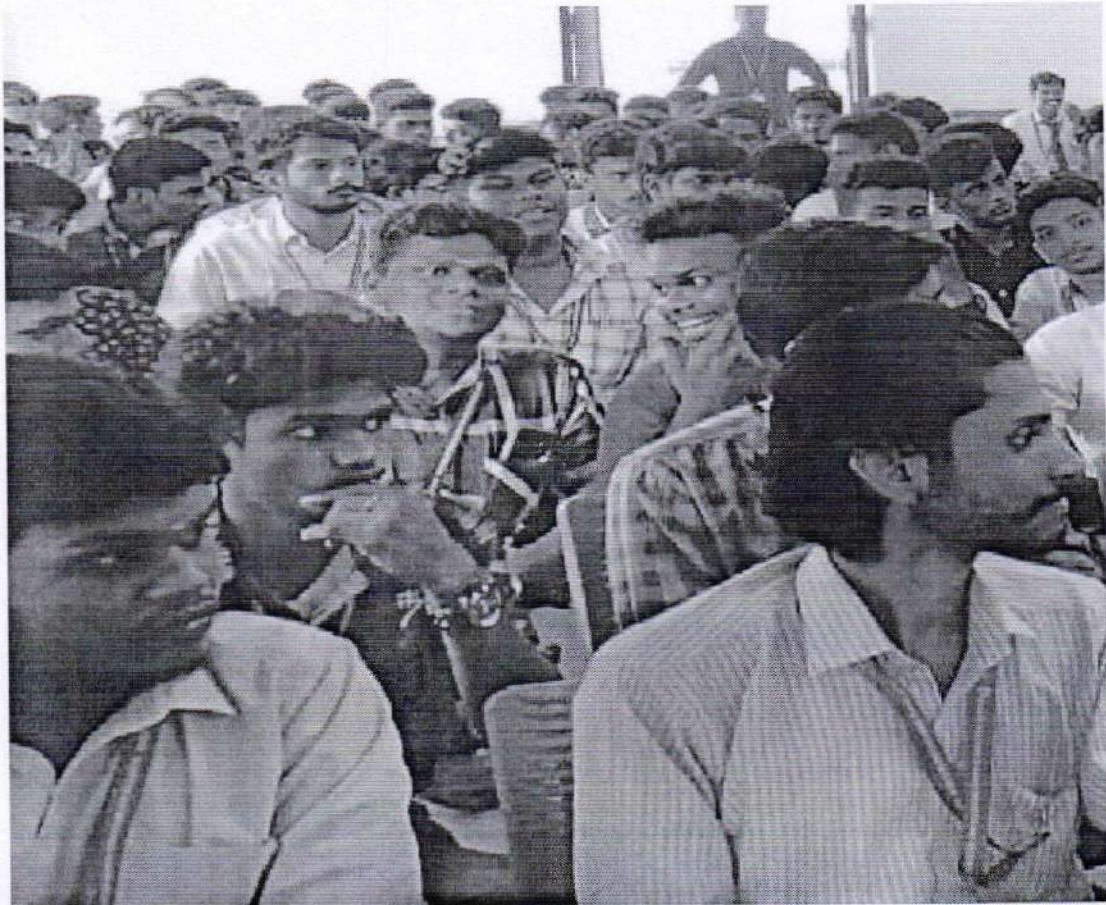


# Shree

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Name of the course	Hands on Training on Design of Humanoid Robot
Handled by	Dr. K. E. Vivekanandan Asso. Prof, Department of Biotechnology School of Arts, BIHER.