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REF.NO:SSIP/ REQ/2019/001   Date: 24/05/2019

From

Department of Pharmaceutics,

SS institute of pharmacy,

Sankari, Salem (DIST) - 637301.

To

The principal,

SS institute of pharmacy,

Sankari, Salem (DIST) – 637301.

Subject: Letter for requesting permission to conduct **ADD ON COURSE** -Reg.

Respected sir,

We are requesting you to grand permission to conduct add-on course in the seminar hall on **3/6/2019 to 18/6/2019**. We wish to conduct add on course on the title **"Robotics and Automation In Drug Manufacturing".** This add-on course program would be a great opportunity for students to learn and that would help to shape the students.

Thanking you,

Yours truly,

PRINCIPAL.
SS INSTITUTE OF PHARMACY.
KUPPANUR (PO), SANKARI (TK).
SALEM -637301

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DATE: 27/05/2019

CIRCULAR

This is to inform that will B.PHARM students have the schedule of following value - added course to be conducted by our SS Institute of Pharmacy and it as mentioned below

COURSE NAME	SCHEDULE	DURATION	VENUE	RESOURCE PERSON
ROBOTICS AND AUTOMATION IN DRUG MANUFACTURING	03/06/2019 to 18/06/2019	35 HOURS	SEMINAR HALL	DR.C.JOTHIMANIVANNAN

All the above-mentioned students must enroll and actively participate in the course without fail.

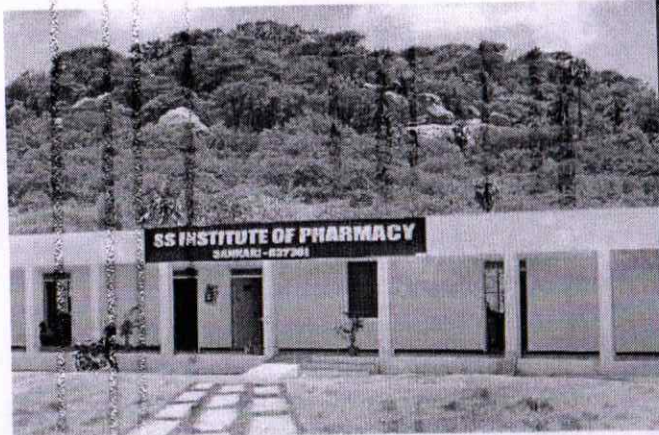**Note**: Certificates will be issued for the eligible students after completion of the course and examination.

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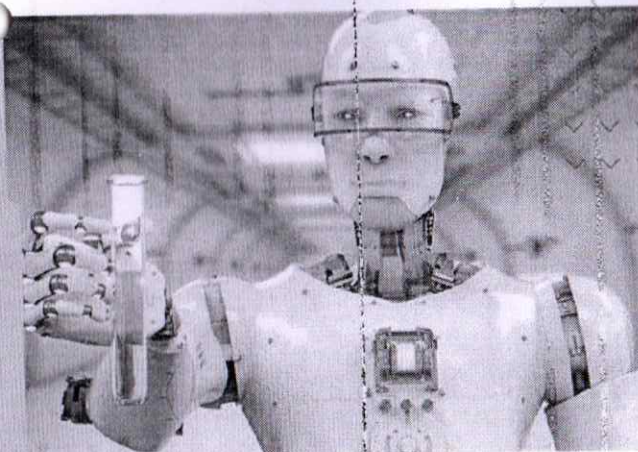KUPPANUR (PO), SANKARI (TK).
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COURSE TITLE

ROBOTICS AND AUTOMATION IN DRUG MANUFACTURING

RESOURCE PERSON

Dr C.Jothimanivannan M.Pharm,Ph.D
Principal, Professor
SS Institute of pharmacy.

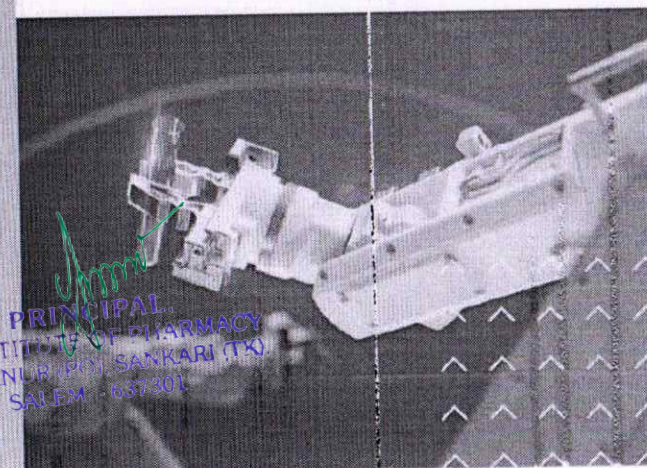## TOPICS

1. Robotics in pharmaceutical manufacturing

2. Automation in drug formulation and development

3. Automated Quality control

4. Robotics in sterile and Aseptic manufacturing

Phone: 9443026056
E-mail: ssip1718@gmail.com
Website: www.ssip.edu.in

ADDRESS:
SS Institute of Pharmacy,
Sankari ,Salem-637 301

SS INSTITUTE OF PHARMACY, SANKARI

DEPARTMENT OF PHARMACEUTICS

VENUE: SSIP Seminar hall
DATE :03.06.2019-18.06.2019
TIME :10:00am-01:00pm

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SYLLABUS
ROBOTICS AND AUTOMATION IN DRUG MANUFACTURING INDUSTRY

Sl. No.	Topic	DATE
1	**Introduction to Robotics and Automation in Pharmaceuticals** -Automated Drug Compounding - Automated Dispensing Systems	3/6/2019 - 4/6/2019
2	**Robotics in Quality Control and Packaging** - Robotic Inspection and Packaging - Automated Labeling and Serialization	5/6/2019 - 7/6/2019
3	**Advanced Technologies in Manufacturing** - Machine Learning in Pharmaceutical Manufacturing - Artificial Intelligence (AI) in Pharmaceutical Manufacturing	10/6/2010- 12/7/2019
4	**Laboratory and Facility Automation** - Robot-Assisted Laboratory Automation - Automated Cleaning and Sanitization	13/6/2010- 14/6/2019
5	**Collaborative Robotics and Process Optimization** - Collaborative Robots (Cobots) in Pharmaceutical Manufacturing - Process Analytical Technology (PAT	17/6/2019- 18/6/2019

RESOURCE PERSON:Dr .C.Jothimanivannan.,M.Pharm.,Ph.D.,

TOTAL HOURS:35 Hrs

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ADD ON / CERTIFICATE VALUE ADDED COURSES
ACADEMIC YEAR 2019-2020

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ACADAMIC YEAR 2019-2020

S.NO	NAME OF ADD ON CERTIFICATES PROGRAMS	COURSE CODE	NO OF STUDENT ENROLLED	TYPE OF ADD ON CERTIFICATI PROGRAMS
1.	Robotics & automation In drug manufacturing	19RADM01	23	Self-framed course
2.	Environmental Sustainability in Pharmaceutical industry	19ESPI02	11	Self-framed course
3.	Strategic management In the pharmaceutical industry	19SMPI03	12	Self-framed course
4.	3D printing in Pharmaceutical	193DPP04	23	Self-framed course
5.	Pharmaceutical Project management	19PPM05	50	Self-framed course

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ADD ON COURSE – ENROLLMENT LIST

NAME OF ADD ON COURSE : ROBOTICS & AUTOMATION IN DRUG MANUFACTURING

COURSE INSTRUCTORS : Dr .C.Jothimanivannan

YEAR OFFERED : 2nd sem B.Pharm

COURSE DURATION : 35 hrs

S.NO	NAME OF STUDENT	REGISTER NO	COURES
1.	A.ABDUL AZIM	561897201	1st B.Pharm
2.	K.ARUNKUMAR	561897202	1st B.Pharm
3.	K.ARUNKUMAR	561897203	1st B.Pharm
4.	V.CHANDURU	561897204	1st B.Pharm
5.	L.DHINESHKUMAR	561897205	1st B.Pharm
6.	S.GANESAN	561897206	1st B.Pharm
7.	M.GNANAPRAKASH	561897207	1st B.Pharm
8.	K.GOKULNATH	561897208	1st B.Pharm
9.	S.GOKUL RAJ	561897209	1st B.Pharm
10.	P.HARI VISHVA	561897210	1st B.Pharm
11.	B.JEEVANANTH	561897211	1st B.Pharm
12.	V.KALAIYARASAN	561897212	1st B.Pharm
13.	K.KAYALVIZHI	561897213	1st B.Pharm
14.	P.MANOBALA	561897214	1st B.Pharm
15.	R.RAJESHKANNAN	561897215	1st B.Pharm
16.	M.SAKTHIVEL	561897216	1st B.Pharm
17.	G.SHAFFIULLAH	561897217	1st B.Pharm
18.	S.SUBASH VARMA	561897218	1st B.Pharm
19.	J.TAMIL SELVAN	561897219	1st B.Pharm
20.	N.VASUVI	561897220	1st B.Pharm
21.	V.VEDHACHALAM	561897221	1st B.Pharm
22.	M.VIGNESH	561897222	1st B.Pharm
23.	R.VIJAY	561897223	1st B.Pharm

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ADD ON COURSE – ENROLLMENT LIST

NAME OF ADD ON COURSE   : ROBOTICS & AUTOMATION IN DRUG MANUFACTURING

COURSE INSTRUCTORS   : Dr .C.Jothimanivannan

YEAR OFFERED   : 2nd sem B.Pharm

COURSE DURATION   : 35 hrs

S.NO	NAME OF THE STUDENT	REGISTER NO	ATTENDANCE					
			3/6/19	4/6/19	5/6/19	6/6/19	7/6/19	10/7/19
1.	A.ABDUL AZIM	561897201	A.A	A.A	A.A	A.A	A.A	A.A
2.	K.ARUNKUMAR	561897202	Arun	Arun	Arun	Arun	Arun	Arun
3.	K.ARUNKUMAR	561897203	K.Arun	K.Arun	K.Arun	K.Arun	K.Arun	K.Arun
4.	V.CHANDURU	561897204	Chru	Chru	Chru	Chru	Chru	Cachu
5.	L.DHINESHKUMAR	561897205	Dini	Dini	Dini	Dini	Dini	Dini
6.	S.GANESAN	561897206	S.Guy	S.Guy	S.Guy	S.Guy	S.Guy	S.Guy
7.	M.GNANAPRAKASH	561897207	G.Pra	G.Pra	G.Pra	G.Pra	G.Pra	G.Pra
8.	K.GOKULNATH	561897208	Guk	Guk	Guk	Guk	Guk	Guk
9.	S.GOKUL RAJ	561897209	G.R	G.R	G.R	G.R	G.R	G.R
10.	P.HARI VISHVA	561897210	P.Hvi	P.Hvi	P.Hvi	P.Hvi	P.Hvi	P.Hvi
11.	B.JEEVANANTH	561897211	Jvl	Jvl	Jvl	Jvl	Jvl	Jvl
12.	V.KALAIYARASAN	561897212	V.Kala	V.Kala	V.Kala	V.Kala	V.Kala	V.Kala
13.	K.KAYALVIZHI	561897213	K.Kay	K.Kay	K.Kay	K.Kay	K.Kay	K.Kay
14.	P.MANOBALA	561897214	Manu	Manu	Manu	Manu	Manu	Manu
15.	R.RAJESHKANNAN	561897215	AB	AB	AB	AB	AB	AB
16.	M.SAKTHIVEL	561897216	Sa	Sa	Sa	Sa	Sa	Sa
17.	G.SHAFFIULLAH	561897217	Safi	Safi	Safi	Safi	Safi	Safi
18.	S.SUBASH VARMA	561897218	S.Varm	S.Varm	S.Varm	S.Varm	S.Varm	S.Varm
19.	J.TAMIL SELVAN	561897219	J.Tamil	J.Tamil	J.Tamil	J.Tamil	J.Tamil	J.Tamil
20.	N.VASUVI	561897220	Vasu	Vasu	Vasu	Vasu	Vasu	Vasu
21.	V.VEDHACHALAM	561897221	V.Vedh	V.Vedh	V.Vedh	V.Vedh	V.Vedh	V.Vedh
22.	M.VIGNESH	561897222	M.Vig	M.Vig	M.Vig	M.Vig	M.Vig	M.Vig
23.	R.VIJAY	561897223	R.Vij	R.Vij	R.Vij	R.Vij	R.Vij	R.Vij

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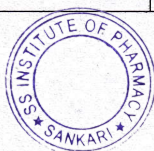KUPPANUR (PO) SANKARI (TK)
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S.NO	NAME OF THE STUDENT	REGISTER NO	ATTENDANCE					
			11/6/19	12/6/19	13/6/19	14/6/19	17/6/19	18/7/19
1.	A.ABDUL AZIM	561897201						
2.	K.ARUNKUMAR	561897202						
3.	K.ARUNKUMAR	561897203						
4.	V.CHANDURU	561897204						
5.	L.DHINESHKUMAR	561897205						
6.	S.GANESAN	561897206						
7.	M.GNANAPRAKASH	561897207						
8.	K.GOKULNATH	561897208						
9.	S.GOKUL RAJ	561897209						
10.	P.HARI VISHVA	561897210						
11.	B.JEEVANANTH	561897211						
12.	V.KALAIYARASAN	561897212						
13.	K.KAYALVIZHI	561897213						
14.	P.MANOBALA	561897214						
15.	R.RAJESHKANNAN	561897215	A	A	A	A	A	A
16.	M.SAKTHIVEL	561897216						
17.	G.SHAFFIULLAH	561897217						
18.	S.SUBASH VARMA	561897218						
19.	J.TAMIL SELVAN	561897219						
20.	N.VASUVI	561897220						
21.	V.VEDHACHALAM	561897221						
22.	M.VIGNESH	561897222						
23.	R.VIJAY	561897223						

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ADD ON COURSE	ROBOTICS AND AUTOMATION IN DRUG MANUFATURING
DEPARTMENT	PHARMACEUTICS
ACADEMIC YEAR	2019-2020
DATE	03/06/2019 to18/06/2019
VENUE	SEMINAR HALL
NAME: K. KAYAL VIZHI	COURSE: II - Sem

ANSWER ALL THE QUESTIONS: **DATE:18/06/2019**

MULTIPLE CHOICE QUESTIONS   **MARKS:15**

1. What is the primary advantage of using robotics in drug manufacturing?
   a) Reduced labor costs
   b) Increased production speed
   c) Enhanced precision and consistency
   d) All of the above

2. Which type of robot is most commonly used in pharmaceutical manufacturing for tasks such as packaging and assembly?
   a) Articulated robots
   b) Cartesian robots
   c) SCARA robots
   d) Collaborative robots

3. In which area of drug manufacturing is automation most likely to reduce human error?
   a) Drug formulation
   b) Quality control
   c) Packaging
   d) Drug dispensing

4. What does a "collaborative robot" (cobot) in drug manufacturing typically do?
   a) Works alongside humans to enhance productivity
   b) Operates in a fully automated environment without human interaction
   c) Specializes in handling hazardous materials
   d) Is used only in the final stages of production

5. Which of the following is NOT a benefit of using automation in drug manufacturing?
   a) Increased regulatory compliance
   b) Higher operational costs
   c) Improved product quality
   d) Faster production times

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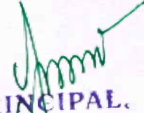SS INSTITUTE OF PHARMACY,
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6. How does automation impact the scalability of drug manufacturing?
   a) Makes scaling up more difficult
   b) Allows for easy adjustment of production volumes
   c) Has no impact on scalability
   d) Reduces the need for skilled workers

7. What is a common application of AI in automated drug manufacturing?
   a) Managing supply chain logistics
   b) Predicting drug efficacy in clinical trials
   c) Monitoring and controlling production processes
   d) Marketing pharmaceutical products

8. Which of the following technologies is essential for implementing automation in drug manufacturing?
   a) Cloud computing
   b) Internet of Things (IoT)
   c) Blockchain
   d) Virtual reality

9. Why is traceability important in automated drug manufacturing?
   a) To monitor employee performance
   b) To ensure each product can be traced back to its source
   c) To increase production speed
   d) To reduce manufacturing costs

10. What is the role of robotics in the packaging process of drug manufacturing?
    a) Measuring and mixing ingredients
    b) Sterilizing the final product
    c) Filling, labeling, and sealing packages
    d) Designing drug formulations

11. Which process in drug manufacturing benefits most from automation to maintain a sterile environment?
    a) Tablet pressing
    b) Powder mixing
    c) Aseptic filling
    d) Tablet coating

12. What is a major challenge when implementing automation in drug manufacturing?
    a) Maintaining flexibility in production lines
    b) Ensuring consistent product quality
    c) Reducing production speed
    d) Integrating legacy systems with new technology

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13. How can automation help in the regulatory compliance of drug manufacturing?
   a) By increasing human oversight
   b) By providing real-time data and documentation
   c) By reducing production costs
   d) By simplifying supply chain management

14. What role does machine vision play in automated drug manufacturing?
   a) Supervising human workers
   b) Enhancing precision in quality inspections
   c) Reducing energy consumption
   d) Automating marketing strategies

15. Which aspect of drug manufacturing is least likely to be fully automated?
   a) Formulation development
   b) Packaging
   c) Quality assurance
   d) Inventory management

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ADD ON COURSE	ROBOTICS AND AUTOMATION IN DRUG MANUFATURING
DEPARTMENT	PHARMACEUTICS
ACADEMIC YEAR	2019-2020
DATE	03/06/2019 to18/06/2019

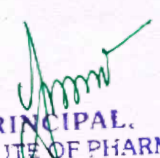**ANSWER KEY:**   **DATE:18/06/2019**

MULTIPLE CHOICE QUESTIONS   **MARKS:15**

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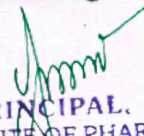KUPPANUR (PO), SANKARI (TK).
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    d) Tablet coating

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    c) Reducing production speed
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ADD ON COURSE – MARK LIST

NAME OF ADD ON COURSE   : ROBOTICS & AUTOMATION IN
DRUG MANUFACTURING

COURSE INSTRUCTORS   : Dr .C.Jothimanivannan

YEAR OFFERED   : 2nd sem B.Pharm

COURSE DURATION   : 35 hrs

S.NO	NAME OF STUDENT	REGISTER NO	MARKS (15)	PERCENTAGE (%)
1.	A.ABDUL AZIM	561897201	15	100%
2.	K.ARUNKUMAR	561897202	14	93%
3.	K.ARUNKUMAR	561897203	13	86%
4.	V.CHANDURU	561897204	13	86%
5.	L.DHINESHKUMAR	561897205	13	86%
6.	S.GANESAN	561897206	14	93%
7.	M.GNANAPRAKASH	561897207	13	86%
8.	K.GOKULNATH	561897208	13	86%
9.	S.GOKUL RAJ	561897209	13	86%
10.	P.HARI VISHVA	561897210	15	100%
11.	B.JEEVANANTH	561897211	13	86%
12.	V.KALAIYARASAN	561897212	13	86%
13.	K.KAYALVIZHI	561897213	15	100%
14.	P.MANOBALA	561897214	13	86%
15.	R.RAJESHKANNAN	561897215	14	93%
16.	M.SAKTHIVEL	561897216	14	93%
17.	G.SHAFFIULLAH	561897217	15	100%
18.	S.SUBASH VARMA	561897218	13	86%
19.	J.TAMIL SELVAN	561897219	12	80%
20.	N.VASUVI	561897220	15	100%
21.	V.VEDHACHALAM	561897221	15	100%
22.	M.VIGNESH	561897222	13	86%
23.	R.VIJAY	561897223	13	86%

TOTAL NUMBER OF STUDENT ATTENDED : 23

TOTAL NUMBER OF PERCENTAGE : 89.82%

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Phone : 04283 241080 | E-mail : ssip1718@gmail.com | Website : www.ssip.edu.in

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and The Directorate of Medical Education, Chennai.

ADD ON COURSE : SUMMARY REPORT

Course code and Name : 19RADM01/ Robotics and Automation in Drug Manufacturing

Date Of Add On Programme : 03/06/2019 to 18/06/2019

Course Duration : 35 Hours

Year Offered : 2nd Sem B Pharm

Course Instructors : Dr.C.Jothimanivannan.,M.Pharm,Ph.D.,
Professor & Principal, SSIP.

Course Outcomes :

- Robotics and automation in drug manufacturing boost efficiency and precision, leading to faster production and consistent quality.
- They reduce costs and improve safety by minimizing human error and handling hazardous materials.
- Enhanced data analysis supports better decision-making and regulatory compliance. Overall, these technologies streamline operations and support innovation.

Course Type : Add on Course

Assessment Mode:

Total Duration : 35 Hours

Number of Participants : 23

Scheme of Exam : MCQ type, offline Mode

Date of Exam : 18/06/2019

Course Coordinator

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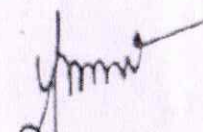
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Certificate of Participation
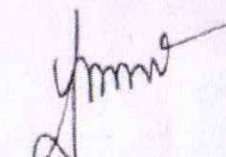
A. ABDUL AZIM

Has appreciated for his /her participation in VALUE ADDED COURSE On
ROBOTICS AND AUTOMATION IN DRUG MANAFACTURING
03/06/2019 TO 18/06/2019

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Certificate of Participation

R. VIJAY

Has appreciated for his /her participation in VALUE ADDED COURSE On
ROBOTICS AND AUTOMATION IN DRUG MANAFACTURING
03/06/2019 TO 18/06/2019

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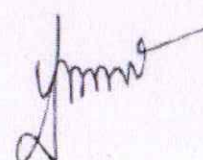
SUBHASH VARMA . S

Has appreciated for his /her participation in VALUE ADDED COURSE On
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03/06/2019 TO 18/06/2019

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STUDENT FEEDBACK FORM

STUDENT NAME: G. SHAFRIULLAH   DATE: 18/06/2019

YEAR/COURSE: B. PHARM - IInd sem.

NAME OF THE ADD ON COURSE: ROBOTICS & AUTOMATION IN DRUG MANUFATURING.

COURSE CODE: 19 RADM01.   DURATION: 35 hrs.

EVALUATE HONESTLY:

Questions	Excellent	Good	Fair	Poor
How was the objectives of the training	✓			
How satisfied are you with our seminar		✓		
How would you rate the clarity and effectiveness of the presenter's delivery	✓			
Was the seminar duration appropriate			✓	
How engaging and interactive was the seminar		✓		
Usefulness of the information provided	✓			
Overall quality of session		✓		

Shaf. G
SIGNATURE

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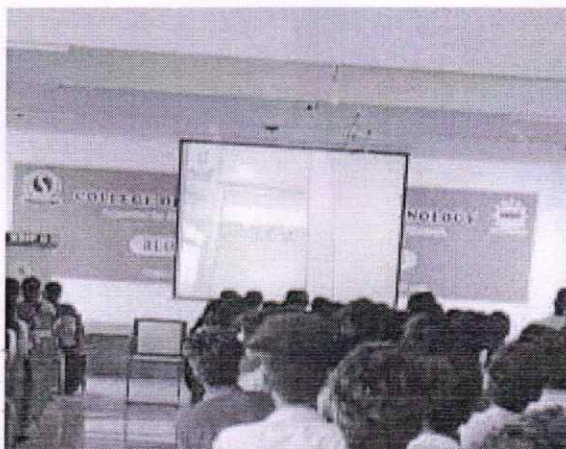Affiliated to the Tamilnadu Dr. M.G.R. Medical University,
and The Directorate of Medical Education, Chennai.

PHOTOGRAPH   DATE : 03/06/2019

ROBOTICS AND AUTOMATION IN DRUG MANUFACTURING

NAME OF ADD ON COURSE   :   ROBOTICS & AUTOMATION IN
                              DRUG MANUFACTURING
COURSE INSTRUCTORS   :   DR .C.JOTHIMANIVANNAN
YEAR OFFERED   :   2nd SEM B.PHARM
COURSE DURATION   :   35 HRS

Add-on course regarding the Topic Application of Robotics and Automation in Drug Manufacturing conducted on 03/06/2019, the speech delivered By **Dr.C.Jothimanivannan.,M.Pharm,Ph.D. Professor & Principal**, SSIP which was an interactive session and students could able to understand the Application of Robotics and Automation in Drug Manufacturing in various areas in the fields of pharmaceutical sciences

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