



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited with 'A' grade by NAAC
Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai - 600 119.



Department of Mechatronics Engineering

School of Mechanical Engineering

Minutes of Board of Studies Meeting held on 21-12-2019 (Saturday)

Meet Time: 10.00 a.m. to 12.30 pm

The meeting started with the welcome address delivered by Dr. S. Prakash, Professor and Dean (Session Chair). He introduced the revised 2019 Regulation Mechatronics Engineering courses to the BOS panel members. The following BOS members were present during the Mechatronics Engineering BOS meeting.

Sl. No.	Name	Designation	Institution	Role
1	Dr. S. Prakash	Professor and Dean	Sathyabama Institute of Science & Technology	Chair person
2	Dr.L.Vijayaraghavan	Professor	IIT Madras, Chennai	BoS Member (External)
3	Dr.N.GaneshKumar	Associate Professor	PSG Tech, Coimbatore	BoS Member (External)
4	Dr. S. Sivasaravanan	Associate Professor	Sathyabama Institute of Science & Technology	Member
5	Dr. M Sangeetha	Associate Professor	Sathyabama Institute of Science & Technology	Member
6	Mr. J. R. Deepak	Assistant Professor	Sathyabama Institute of Science & Technology	Member
7	Dr.J. Lilly Mercy	Assistant Professor	Sathyabama Institute of Science & Technology	Member
8	Mr. V. Jayaprakash	Assistant Professor	Sathyabama Institute of Science & Technology	Member
9	Mr. J. Senthil Kumar	Assistant Professor	Sathyabama Institute of Science & Technology	Member
10	Mr. M Vigneshwar	Students	Sathyabama Institute of Science & Technology	Student Member
11	Mr Aman Dinodya	Students	Sathyabama Institute of Science & Technology	Student Member

Following are the discussions made in the BOS meeting

- Mr. V. Jayaprakash, proposed a new course **SMRA1201 - Fundamentals of Automation and Control** replacing **SMR1101 Digital Electronics** offered in 2018 syllabus in the second semester as the students has to learn the basics of Automation and Control which will be a prerequisite for the upcoming papers.
- Dr. L. Vijayaraghavan, Professor from IIT Madras, Chennai and Dr. N. Ganesh Kumar, Associate Professor from PSG Tech (External BOS members) reviewed the course and approved the inclusion of the new course in 2019 Regulation.

New Course proposed in 2019 Syllabus

SMRA1201 FUNDAMENTALS OF AUTOMATION AND CONTROL

L T P Credits Total Marks

3 0 0 3 100

COURSE OBJECTIVES

- ÿ Be aware of the scope and usefulness of industrial automation and its consequences.
- ÿ To apply automation technologies.
- ÿ Learn the most common sensors and ways of wiring.
- ÿ Differentiate the different types of actuators.

UNIT 1 MODELING AND ANALYSIS OF DYNAMIC SYSTEMS 9 Hrs.

Fundamental concepts in dynamic systems: systems, models, linearity, static behavior, dynamic behavior, modeling of continuous dynamic systems, Definition of transfer function. Block diagrams, Time response in linear systems.

UNIT 2 AUTOMATIC CONTROL 9 Hrs.

Concepts of feedback. Robustness, stability, accuracy, ability to follow set-points, PID control. Empirical tuning and analytical tuning, Feedback loop instrumentation, Control structures.

UNIT 3 INDUSTRIAL AUTOMATION 9 Hrs.

Concept of industrial automation, Continuous and discrete systems, Integrated production systems: CAD/CAM, CAE and CIM, General structure of an automated system, Examples of automated production systems.

UNIT 4 COMPONENTS OF AN AUTOMATED SYSTEMS 9 Hrs.

Control devices – open loop, closed loop, feedback control, Sensors- Types of sensors, Selection of Sensors, Application of sensors, Actuators- Types of actuators, Application of actuators.

UNIT 5 COMPUTER BASED INDUSTRIAL CONTROL 9 Hrs.

Introduction & Automatic Process Control, Building Blocks of Automation Systems: LAN, Analog & Digital I/O Modules, SCADA Systems & RTU. Distributed Control System: Functional Requirements, Configurations & some popular Distributed Control Systems. (SLE: Display Systems in Process Control Environment.)

Max: 45 Hrs.

COURSE OUTCOMES

On completion of the course, student will be able to

CO1 - Select & identify suitable automation hardware for the given application.

CO2 - Describe & explain potential areas of automation.

CO3 - Differentiate various control aspects of automation.

CO4 - Demonstrate the self-learning capability of Industrial Automation.

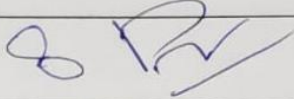
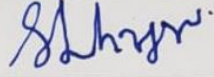
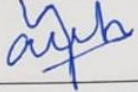
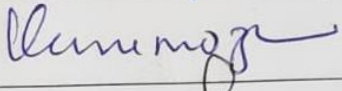
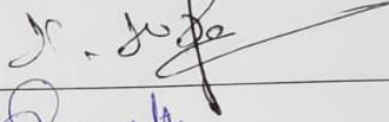


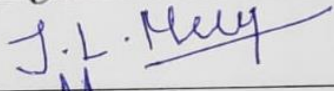
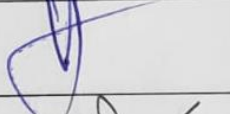


CO5 - SCADA architecture, communication in SCADA, develops any application based on SCADA along with GUI using SCADA software.

CO6 - Understand evolution and architecture of DCS, hierarchical control in DCS, programming DCS through function Block Diagram (FBD) method.

TEXT / REFERENCE BOOK

1. Automation, Production Systems and Computer Integrated Manufacturing- M.P.Groover, Pearson Education.5th Edition, 2009.
2. Computer Based Industrial Control- Krishna Kant, EEE-PHI, 2nd Edition, 2010.
3. An Introduction to Automated Process Planning Systems- Tiess Chiu Chang & Richard A. Wysk.
4. Performance Modeling of Automated Manufacturing Systems,-Viswanandham, PHI, 1st Edition, 2009

- Signature of BOS members

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1	Dr. S. Prakash	
2	Dr.L.Vijayaraghavan	
3	Dr.N.Ganesh Kumar	
4	Dr. B. Kanimozhi	
5	Dr. S. Sivasaravanan	
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