## SEMESTER – VI

| Course Code | UDS21601J | Course Name | *INTELLIGENT AUTOMATION FOR ENTERPRISE* | Course Category | C | Professional Core Course | L | T | P | C |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 4 | 0 | 4 | 6 |

| Pre-requisite Courses | Nil | Co-requisite Courses | Nil | Progressive Courses | Nil |
|---|---|---|---|---|---|
| Course Offering Department | Computer Applications | | Data Book / Codes/Standards | Nil | |

| Course Learning Rationale (CLR): | The purpose of learning this course is to, | Learning | Program Learning Outcomes (PLO) |
|---|---|---|---|

| | | Level of Thinking (Bloom) | Expected Proficiency (%) | Expected Attainment (%) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fundamental Knowledge | Application of Concepts | Link with Related Disciplines | Procedural Knowledge | Skills in Specialization | Ability to Utilize Knowledge | Skills in Modeling | Analyze, Interpret Data | Investigative Skills | Problem Solving Skills | Communication Skills | Analytical Skills | ICT Skills | Professional Behavior | Life Long Learning |
| CLR-1 : | To teach the participants how a traditional automation is implemented in the industry to build solutions and how different they are from the intelligent automation | | | | | | | | | | | | | | | | | | |
| CLR-2 : | To get a clear Understanding of Business Process automation, the role they play in an automation process | | | | | | | | | | | | | | | | | | |
| CLR-3 : | To get a clear Understanding of Robotic Process automation, the role they play in an automation process | | | | | | | | | | | | | | | | | | |
| CLR-4 : | To Inculcate the Technical Architecture, Framework, Components of an intelligent automation process. | | | | | | | | | | | | | | | | | | |
| CLR-5 : | To have a clear understanding of intelligent automation real-world applications across different verticals | | | | | | | | | | | | | | | | | | |
| CLR-6 : | To explore the Best Practises, Policies methodologies for a successful intelligent automation, right processes to automate, doing a pilot run etc. | | | | | | | | | | | | | | | | | | |
| Course Learning Outcomes (CLO): | At the end of this course, learners will be able to: | | | | | | | | | | | | | | | | | | |
| CLO-1 : | Differentiate between traditional and intelligent automation, have a complete understanding of each of the automation lifecycle. | 2 | 85 | 80 | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *M* | *M* | *H* | *H* | *H* | *H* |
| CLO-2 : | Have an Excellent knowledge on the technologies and applications behind intelligent automation and the future it holds for the organizations | 3 | 85 | 80 | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *M* | *M* | *H* | *H* | *H* | *H* |
| CLO-3 : | Have Excellent exposure to intelligent automation real world applications across industry verticals. | 3 | 85 | 80 | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *M* | *M* | *H* | *H* | *H* | *H* |
| CLO-4 : | Demonstrated knowledge of Business process automation and its working, technical architecture and framework. | 3 | 85 | 80 | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *M* | *M* | *H* | *H* | *H* | *H* |
| CLO-5 : | Demonstrated knowledge of Robotic process automation and its working, technical architecture and framework. | 3 | 85 | 80 | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *M* | *M* | *H* | *H* | *H* | *H* |
| CLO-6 : | Have a firm control to explain the best practices, right business processes to automate, Change management etc. | 3 | 85 | 80 | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *H* | *M* | *M* | *H* | *H* | *H* | *H* |

Note: All our curriculum, study materials, assignments, quizzes, lab works, and learning resources are personalized and dynamically generated using machine learning models based on the learner's learning ability. Users can review our learning curriculum only through our intelligent learning management platform (iLMSP), and our learning resources and lab infrastructures are available only in the digital form on our cloud infrastructures.

| Duration (hour) | | 24 | 24 | 24 | 24 | 24 |
|---|---|---|---|---|---|---|
| S-1 | SLO-1 | **Unit 1: Traditional Automation** | Managing Business processes for Digital Transformation | Improving Accuracy and reliability | Components of Intelligent Automation Framework | Rule-based methods |
| | SLO-2 | Traditional Automation Overview | **Unit 4: Business Process Automation** | Improving Customer Experience | Business Objectives | Rule-based methods |
| S-2 | SLO-1 | History of Traditional Automation | Business Process Automation overview | Keeping up with Compliance and Regulations | Business Process Analysis | Repetitive processes |
| | SLO-2 | Principles and theories of Traditional Automation | How does Business Process Automation work? | Intelligent Automation market | Business Process Redesign | Structured Processes |
| S-3 | SLO-1 | Business Benefits of Traditional Automation | Business Benefits of Business Process Automation | Intelligent Automation market share | Develop Automated Processes | Doing a Pilot Run |
| | SLO-2 | Business Challenges of Traditional Automation | Business Challenges of Business Process Automation | Intelligent Automation market size | Intelligent Operations | Doing a Pilot Run |
| S-4 | SLO-1 | Traditional Automation vs Intelligent Automation | Types of Business Process Automation | Intelligent Automation market growth | **Unit 10: Intelligent Automation Implementation Framework** | Team |
| | SLO-2 | Traditional Automation vs Robotic Process Automation | When to use Business Process Automation | What is Intelligent Process Automation's Role in the Future of Automation | Healthcare | Tools |
| S-5 to S-8 | SLO-1 | Lab 1 : | Lab 4 : | Lab 7: | Lab 10 : | Lab 13: |
| | SLO-2 | | | | | |
| S-9 | SLO-1 | **Unit 2: Intelligent Automation** | Best Practices for Business Process Automation | Building the business cases for intelligent | Personalized Treatment | Adoption of New Technology |
| | SLO-2 | Intelligent Automation Overview | Business Process Automation Tools and technologies. | **Unit 7: Intelligent Automation Technologies and Architecture** | Medical Imaging | Traditional Delivery Models |
| S-10 | SLO-1 | Components of Intelligent Automation | **Unit 5: Robotic Process Automation** | Intelligent Automation Defined Once and for All | Consumer | Change Management |
| | SLO-2 | Business Benefits of Intelligent Automation | Robotic Process Automation overview | Process Orchestration | On-line Shopping | Evaluate the ROI |
| S-11 | SLO-1 | Business Challenges of Intelligent Automation | Business Benefits of Robotic Process Automation | Artificial Intelligence and Machine Learning | Warehouse Logistics | |
| | SLO-2 | Examples of Intelligent Automation | Business Challenges of Robotic Process Automation | Robotic Process Automation | Transaction security | |
| S-12 | SLO-1 | Future of Intelligent Automation | Why Robotic Process Automation? | Components of Intelligent Automation | Manufacturing | |
| | SLO-2 | Technologies behind Intelligent Automation | Robotic Process Automation Market | Architecture | Automated Factory Floor | |
| | SLO-1 | Lab 2 : | Lab 5 : | Lab 8: | Lab 11: | Lab 14: |

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| S-13 to S-16 | SLO-2 | | | | | |
| S-17 | SLO-1 | Applications of Intelligent Automation | Robotic Process Automation Drivers | Strategies and roadmaps | Automated Workflow | |
| | SLO-2 | **Unit 3: Traditional Business Automation vs. Intelligent Industrial Automation** | Robotic Process Automation Economics | Best practices and methodologies for Intelligent Automation | Machine Vision | |
| S-18 | SLO-1 | Traditional Business Automation Overview | Robotic Process Automation Strategy | **Unit 8: Real World Intelligent Automation Applications - Insurance, Finance, Life Sciences, and Manufacturing** | Transportation | |
| | SLO-2 | Traditional Business Management Overview | Robotic Process Automation Implementation | Intelligent Automation in Insurance | Autonomous cars | |
| S-19 | SLO-1 | Difference Between Business Automation and Business Management | Robotic Process Automation Implementation Examples | Intelligent Automation in Finance | Route Optimization | |
| | SLO-2 | Working of Business Automation | **Unit 6: Robotic Process Automation** | Intelligent Automation in Life Sciences | Supply Planning | |
| S-20 | SLO-1 | How business automation improves business processes | Intelligent Automation Industry Needs Overview | Intelligent Automation in Manufacturing | **Unit 11: Intelligent Automation Best Practices and Adoptions** | |
| | SLO-2 | Digital Transformation for traditional businesses | Reducing Costs and Improving Productivity | **Unit 9: Intelligent Automation Implementation Framework** | Find the Right Process to Automate | |
| S-21 to S-24 | SLO-1<br>SLO-2 | Lab 3: | Lab 6: | Lab 9: | Lab 12: | Lab 15: |

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| Learning Resources | 1. Automating Open-Source Intelligence Algorithms for OSINT by Robert Layton, Paul A. Watters<br>2. Genetic Algorithms and Machine Learning for Programmers Create AI Models and Evolve Solutions -Frances Buontempo | |

**Learning Assessment**

| | Bloom's Level of Thinking | Continuous Learning Assessment (50% weightage) | | | | | | | | Final Examination (50% weightage) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CLA – 1 (10%) | | CLA – 2 (10%) | | CLA – 3 (20%) | | CLA – 4 (10%) # | | | |
| | | Theory | Practice | Theory | Practice | Theory | Practice | Theory | Practice | Theory | Practice |
| Level 1 | Remember<br>Understand | 20% | 15% | 20% | 15% | 20% | 15% | 20% | 15% | 20% | 15% |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Level 2 | Apply | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% | 20% |
| | Analyze | | | | | | | | | | |
| Level 3 | Evaluate | 10% | 15% | 10% | 15% | 10% | 15% | 10% | 15% | 10% | 15% |
| | Create | | | | | | | | | | |
| | Total | 100 % | | 100 % | | 100 % | | 100 % | | 100 % | |

# CLA – 4 can be from any combination of these: Assignments, Seminars, Tech Talks, Mini-Projects, Case-Studies, Self-Study, MOOCs, Certifications, Conf. Paper etc.,

| **Course Designers** | | |
|---|---|---|
| **Experts from Industry** | **Experts from Higher Technical Institutions** | **Internal Experts** |
| Mr.Jothi, Periyasamy , Chief AI Architect DeepSphere.AI, CA, USA | Dr.S.Gopinathan, Associate Professor, University of Madras, Chennai | Mr.J. Venkat Subramaniyan, SRMIST |
| | | Dr.S.Sivakumar, SRMIST |