A.V.C COLLEGE OF ENGINEERING, MANNAMPANDAL

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

"FORCE (FORum of Computer science and Engineers') Newsletter"

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HOD'S DESK

The COVID-19 pandemic compelled the global and abrupt conversion of conventional face-to-face instruction to the online format in many educational institutions. Urgent and careful planning is needed to mitigate negative effects of pandemic on our education. I appreciate the students those who are participating in the webinars / workshops/ online certification courses by effectively utilizing this time.

Learning and enhancing your skills are vital in this technological era. This helps you to prepare yourself for getting the highest paying jobs in the field of your choice. Learning new technologies and tools will take you an inch closer to the promotion you always dreamt of.

"Education is the most powerful weapon which you can use to change the world"

Dr.S.Padmapriya, HOD/CSE

Faculty Corner

INTELLIGENT PROCESS AUTOMATION (IPA)

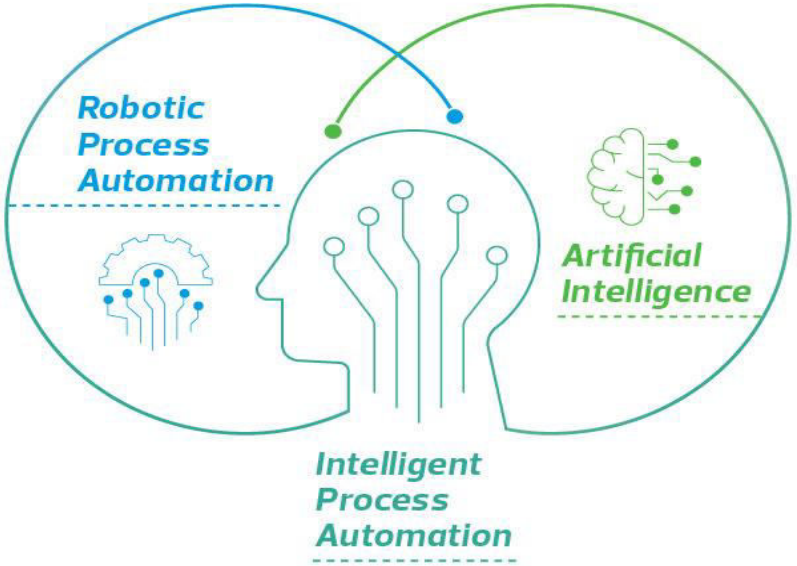
Mrs.R.SUDHA, AP/CSE

Introduction:

Intelligent Process Automation (IPA) is the collection of technologies that come together to manage, automate and integrate digital processes. The primary technologies that make up IPA include Digital Process Automation (DPA), Robotic Process Automation (RPA) and Artificial Intelligence (AI).

DPA describes the agile set of intelligent process automation technologies that have evolved from their roots in BPM technology. DPA provides the agility and insight needed to enable a holistic approach to automating business processes. It enables you to manage the flow of data across your enterprise and makes it easier to identify areas for improvement and make agile changes. **RPA** brings speed and efficiency to the table. Deploying robots that mimic human actions helps to reduce very manual, labor-intensive tasks, such as re-keying data from one system to another. **AI** then contributes great intelligence and decisions to the mix. This brings another level of thinking to the automation as AI can analyze data in a way that a human could not, recognizing patterns in data and learning from past decisions to make increasingly intelligent choices.

Fig.No.1. Diagram for IPA



Technologies in Intelligent Process Automation

IPA is the product of the convergence of AI and related technologies – including computer vision, cognitive automation and machine learning – with RPA. Bringing these technologies together catalyzes richer automation possibilities, unlocking even more business value for enterprises. Some of the core technologies in IPA include:

- Unattended robots or server-based bots that fully automate processes that do not require human judgement or intervention.
- Machine learning algorithms that find patterns in structured data through "supervised" and "unsupervised" learning.
- Smart workflow tools that help to manage, integrate and hand off processes spanning people and machines.
- Cognitive agents, virtual agents that combine machine learning and natural-language generation to carry out tasks, learn from data sets, and communicate with human users.
- Computer vision tools such as Optical Character Recognition, the technology used to convert a scanned document or photo into text.
- Natural language processing (NLP) tools, which enable a computer to understand, interpret and manipulate spoken or written language. This technology is key in chatbots and virtual assistants.

Benefits of Intelligent Process Automation

- Orchestration of humans and robots
- Freeing up employees from routine tasks
- Ensuring proper governance and minimizing risk
- End-to-end visibility of processes and the customer journey
- Agility and speed of process change

DEVOPS

Student Corner

V.MEIYAMMAI, III CSE

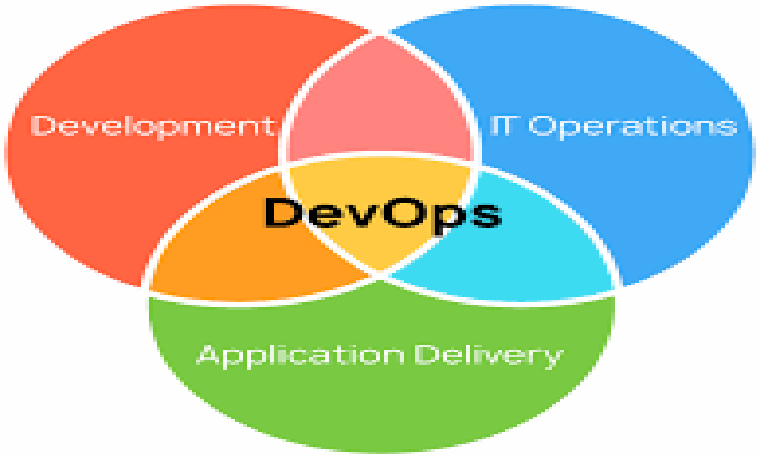
Introduction:

The word *DevOps* is a combination of the terms *development* and *operations*, meant to represent a collaborative or shared approach to the tasks performed by a company's application development and IT operations teams. In its broadest meaning, DevOps is a philosophy that promotes better communication and collaboration between these teams -- and others -- in an organization. In its most narrow interpretation, DevOps describes the adoption of iterative software development, automation and programmable infrastructure deployment and maintenance. The term also covers culture changes, such as building trust and cohesion between developers and systems administrators and aligning technological projects to business requirements. DevOps can change the software delivery chain, services, job roles, IT tools and best practices.

Methodologies used in DevOps

- Continuous integration and continuous delivery or continuous deployment (CI/CD) tools, with an emphasis on task automation;
- Products that support DevOps adoption including real-time monitoring and incident management systems, configuration management and collaboration platforms; and

Fig.No.1.Diagram for DevOps



- Cloud computing, microservices and containers implemented concurrently with DevOps methodologies.

Organizations can use the DevOps maturity model as a guide to adoption:

- Initial: Teams are siloed; work is reactive and done with ad hoc tool and process choices.
- Defined: A pilot project defines a DevOps approach, basic processes and tools. It is a proof of concept.
- Managed: The organization scales up DevOps adoption with lessons learned from the pilot. The pilot's results are repeatable with different staff members and project types.
- Measured: With processes and tools in place, the teams share knowledge and refines practices. Automation and tool connectivity increase, and standards are enforced through policies.

Optimized: Continuous improvement occurs. DevOps might evolve into different tool sets or processes to fit use cases. For example, customer-facing apps have a higher release frequency, and financial management apps.

DevOps benefits and challenges

DevOps benefits include the following:

- fewer silos and increased communications between IT groups;
- faster time to market for software
- rapid improvement based on feedback
- less downtime
- improvement to the whole software delivery pipeline through builds, validations and deployment
- less menial work, thanks to automation
- streamlined development processes through increased responsibility and code ownership in development and
- broader roles and skills.
- Configuration management
- Cloud-based DevOps pipelines

DEPARTMENT SPOTLIGHTS

- Our Department conducted a webinar on "Data Science" by Mrs.PreethaSelvam, Digital Delivery Manager, UK.
- Our Department conducted a webinar on "How to prepare and deliver a quality speech" by Mrs.J.Josephine Ananthi, Technology Lead, Infosys, Chennai.
- Our Department conducted a webinar on "Mobile Application Development with Flutter" by our alumni Ms.M.Abiramasundari, Proprietor, Home of Programming, Thirukadaiyur.
- Our CSE students Mr.M.Kanagaraj (III CSE), S.Baviya (III CSE), D.Vishal Kumaran(II CSE), S.Preethi (IV CSE) and S.Keerthi (IV CSE) and A.Ezhil (IV CSE) had got selected in Smart India Hackathon grand Finale 2020 and receive 1 lakh cash prize at Government of Gujarat.
- Our Department conducted a webinar on "Life in US:Current Scenario for higher studies" by our alumni Ms.Mallavarappu Johnsy Vineela, System Engineer II at Ally Bank in Charlotte, North Carolina.

Push your ideas to
Faculty: M.Kavitha,AP/CSE
Student Coordinator:
1. M.Kanagaraj, IV CSE
2. J.Rukshana Safrin, III CSE
3. G.U.Samyuktha, II CSE
Editors-Force Newsletter
Mail-id:forcenewsletter@gmail.com

Institution Vision

To blossom into a cynosure of technological innovations.

Mission

To participate in the noble cause of nation building by offering professional education, research and training in engineering and technology especially to the rural based poor students.

Department Vision:

To excel in the field of Computer Science and Engineering with technological innovations.

Department Mission:

1. To impart quality technical education to the students through creative teaching learning process especially to the rural based students.

2. To create facilities and expertise in cutting-edge computer technologies through industry institute partnership.

3. To motivate the students to apply their innovative ideas to construct research models.

4. To transform the students into socially and ethically responsible professionals.

Programme Educational Objectives (PEOs):

Graduates of this B.E Computer Science and Engineering will be able to

PEO 1: To enable graduates to pursue higher education and research, or have a successful career in industries associated with Computer Science and Engineering, or as entrepreneurs.

PEO 2: To ensure that graduates will have the ability and attitude to adapt to emerging technological changes.

PEO 3: To effectively communicate ideas in oral or written and to promote collaboration with other members of engineering teams.

Programme Outcomes (POs):

By the time of graduation, graduates will attain the following programme outcomes:

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

2. 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.

3. 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.

4. 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.

5. 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.

6. 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.

7. 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.

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

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

10. 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.

11. 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.

12. 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.

Program Specific Objectives (PSOs)

1. To analyze, design and develop computing solutions by applying foundational concepts of Computer Science and Engineering

2. To apply software engineering principles and practices for developing quality software for scientific and business applications

3. To adapt to emerging Information and Communication Technologies (ICT) to innovate ideas and solutions to existing/novel problems.