RAAK

COLLEGE OF ENGINEERING AND TECHNOLOGY

(Approved by AICTE, New Delhi & Affiliated to Pondicherry University)

RAAKCET/PRINCIPAL/CIR/FEB 2020 **Date: 04.02.2020**

CIRCULAR

I am pleased to inform you that our esteemed college is organizing a Faculty Development Program on "Innovative Design and Problem Solving Methodologies" will be held from 17.02.2020 to 21.02.2020. It is mandatory to attend the FDP to upgrade your knowledge and skills.

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SCHEDULE FOR FDP

INNOVATIVE DESIGN AND PROBLEM SOLVING METHODOLOGIES

17th Feb 2020 to 21st Feb 2020

Program Schedule:

S.No	Date	Topic	Session	Speaker	Venue
Day 1	17.02.2020	Design Thinking	I	Mr.K.Devananthan	RAAKCET Seminar Hal
			II	Mr.K.Devananthan	
		Creative Problem Solving	III	Mr.G.Krishanakumar	
Day 2	18.02.2020	Systems Thinking	I	Mr.G.Krishanakumar	
			II	Dr.Sivasankaran	
		Lean and Agile Methodologies	III	Dr.Sivasankaran	
Day 3	19.02.2020	TRIZ (Theory of Inventive Problem Solving)	I	Mr.N. Sowri Raja Pillai	
			II	Mr.N. Sowri Raja Pillai	

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		Human-Centered Design	III	Mr.G.Krishanakumar	
Day 4	20.02.2020	Prototyping and Rapid Experimentation	I	Dr.Sivasankaran	RAAKCET Seminar Hall
			II	Dr.Sivasankaran	
		Design for Sustainability	III	Mr.G.Krishanakumar	
Day 5	21.02.2020	Collaborative Problem Solving	I	Mr.K.Devananthan	
			II	Mr.K.Devananthan	
		Decision-Making Frameworks	III	Dr.Sivasankaran	

Schedule of the Day : First Session : 09.00 AM – 11.00 AM; Tea Break : 11.00 AM – 11.15 AM Second Session : 11.15 AM – 1.15 PM; Lunch Break : 1.15 PM – 2.00 PM; Third Session : 2.00 PM – 4.00 PM.

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FDP Report on Innovative Design and Problem Solving Methodologies

Institution Name	RAAK College of Engineering and Technology
Date of Event	17th Feb 2020 to 21st Feb 2020
Event Category	Faculty Development Program
Topic	Innovative Design and Problem Solving Methodologies
Guest Name	• Mr.K.Devananthan • Mr.G.Krishanakumar • Dr.Sivasankaran • Mr.N. Sowri Raja Pillai

Brief Report :

Overview

The Faculty Development Program (FDP) on Innovative Design and Problem Solving Methodologies aimed to equip faculty with contemporary approaches and techniques for effective problem-solving and design innovation. As industries increasingly seek creative solutions to complex challenges, these programs focused on methodologies that foster innovation and enhance the ability to tackle real-world problems. Participants engaged in interactive sessions, case studies, and hands-on workshops, fostering a culture of creativity and collaboration.

Objectives of the FDP

1. To enhance understanding of various innovative design and problem-solving methodologies.
2. To provide practical tools for applying these methodologies in academic and professional

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contexts.

3. To encourage interdisciplinary collaboration and innovative thinking among faculty.
4. To promote the integration of sustainable practices into design and problem-solving processes.

Topics Discussed

- **Design Thinking:** Introduced the iterative process of design thinking, emphasizing empathy, ideation, and prototyping. Participants learned how to apply this user-centered approach to identify and solve complex problems.
- **Creative Problem Solving:** Explored techniques to foster creativity, including brainstorming, mind mapping, and lateral thinking. Discussed strategies for overcoming mental blocks and encouraging innovative thought.
- **Systems Thinking:** Discussed the importance of understanding complex systems and their interdependencies. Participants learned to analyze problems holistically, considering broader impacts and relationships.
- **Lean and Agile Methodologies:** Covered principles of lean and agile practices in design and project management. Emphasized iterative development, customer feedback, and continuous improvement to enhance efficiency and adaptability.
- **TRIZ (Theory of Inventive Problem Solving):** Introduced TRIZ as a systematic approach to problem-solving that focuses on identifying and eliminating contradictions in designs. Discussed practical applications of TRIZ in engineering and product development.
- **Human-Centered Design:** Emphasized the significance of designing solutions that

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prioritize user needs and experiences. Participants learned methods for user research and testing to ensure design relevance and effectiveness.

- **Prototyping and Rapid Experimentation:** Discussed the role of prototyping in the design process, highlighting techniques for rapid experimentation. Participants engaged in hands-on activities to create low-fidelity prototypes and gather user feedback.
- **Design for Sustainability:** Addressed the principles of sustainable design, focusing on minimizing environmental impact and promoting social responsibility. Discussed strategies for integrating sustainability into product and system design.
- **Collaborative Problem Solving:** Explored techniques for fostering collaboration among diverse teams, emphasizing communication, trust-building, and conflict resolution. Participants engaged in exercises to practice collaborative approaches.
- **Decision-Making Frameworks:** Introduced various frameworks for effective decision-making, including cost-benefit analysis, multi-criteria decision analysis, and the use of decision matrices. Discussed how to apply these frameworks to enhance the decision-making process.

Outcomes of the FDP

The FDP significantly enhanced participants' understanding of innovative design and problem-solving methodologies. Faculty members reported increased confidence in applying these techniques within their teaching and research. The program fostered a collaborative environment, encouraging faculty to explore interdisciplinary projects and share insights on innovative practices. Additionally, discussions on sustainability and human-centered design underscored the importance of socially responsible approaches in engineering and technology. Participants expressed enthusiasm for incorporating these methodologies into their courses, enriching the

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FACULTY DEVELOPMENT PROGRAM- ATTENDANCE

TOPIC: Innovative Design and Problem Solving Methodologies

.NO	NAME OF THE FACULTY	DEPT.	DESIG.	17.2.2020	18.2.2020	19.2.2020	20.2.2020	21.2.2020
1	Mr. G. MURALIMANOJ	AP	MECH					
2	Mr. K. KRISHNABHARATHY	AP	MECH					
3	Mr.I. MALAYALATHAN	AP	MECH					
4	Mr. G. KRISHNAKUMAR	AP	MECH					
5	Ms. D. DHARANI	AP	MECH					
6	Mr. M. PRATHAPCHANDRAN	AP	MECH					
7	Mr. K. KIRUBAKARAN	AP	MECH					
8	Ms. V. UVARANJANI	AP	ECE					
9	Ms. J. DHARANI	AP	ECE					
10	Mr.S. JAYABALAN	AP	ECE					
11	Ms. R. ARPUTHAVALLI	AP	ECE					
12	Ms.V. BHUVANESWARI	AP	ECE					
13	Mr. S. JENITON	AP	ECE					
14	Mr.K. KRISHNADASS	AP	ECE					
15	Mr.J.MARTIN	AP	ECE					
16	Ms. P. VISHNUPRIYA	AP	ECE					
17	Mr.B. JOSEPH SELVARAJ	AP	ECE					

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18	Mr. S. KARTHIK	AP	ECE					
19	Ms. R. AARTHI	AP	ECE					
20	Mr. K. MURUGAN	AP	EEE					
21	Mr. V. PRAKASH BABU	AP	EEE					
22	Mrs. S. REMYA	AP	EEE					
23	Mrs.E. EZHILARASI	AP	EEE					
24	Mr. B. MURUGAN	AP	EEE					
25	Ms. K. KALAIMANI	AP	EEE					
26	Mr.M. RAGHU	AP	EEE					
27	Ms. N. SHALINI	AP	EEE					
28	Mrs. K. PADMA PRIYA	AP	EEE					

PROGRAM COORDINATOR

HOD/DEPT. OF ECE

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RAAKCET/PRINCIPAL/CIR/DEC 2019

Date: 12.12.2019

CIRCULAR

I am pleased to inform you that our esteemed college is organizing a Faculty Development Program on "Computer Vision & Image Processing For Real – World Applications" will be held from 16.12.2019 to 20.12.2019. It is mandatory to attend the FDP to upgrade your knowledge and skills.

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SCHEDULE FOR FDP

COMPUTER VISION & IMAGE PROCESSING FOR REAL – WORLD APPLICATIONS

16th Dec 2019 to 20st Dec 2019

Program Schedule:

S.No	Date	Topic	Session	Speaker	Venue
Day 1	16.12.2019	Fundamentals of Computer Vision	I	Mr.N. Sowri Raja Pillai	RAAKCET Seminar Hall
			II	Mr.N. Sowri Raja Pillai	
		Image Acquisition and Preprocessing	III	Dr.S.Santhosh	
Day 2	17.12.2019	Feature Detection and Matching	I	Mr. B. Murugan	
			II	Mr. B. Murugan	
		Object Detection and Recognition	III	Mr.N. Sowri Raja Pillai	
Day 3	18.12.2019	Image Segmentation	I	Dr.S.Santhosh	
			II		

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				Mr.Gunalan	
		Deep Learning for Computer Vision	III	Mr. B. Murugan	
Day 4	19.12.2019	Face Detection and Recognition	I	Mr. B. Murugan	RAAKCET Seminar Hall
			II	Mr.Gunalan	
		Motion and Tracking	III	Mr.Gunalan	
Day 5	20.12.2019	3D Vision and Stereoscopy	I	Mr.N. Sowri Raja Pillai	
			II	Dr.S.Santhosh	
		Real-World Applications	III	Mr. B. Murugan	

Schedule of the Day : First Session : 09.00 AM – 11.00 AM; Tea Break : 11.00 AM – 11.15 AM Second Session : 11.15 AM – 1.15 PM; Lunch Break : 1.15 PM – 2.00 PM; Third Session : 2.00 PM – 4.00 PM.

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FDP Report on Computer Vision & Image Processing for Real-World Applications

Institution Name — RAAK College of Engineering and Technology

Date of Event — 16th Dec 2019 to 20st Dec 2019

Event Category — Faculty Development Program

Topic — Computer Vision & Image Processing For Real – World Applications

Guest Name

- Mr.N. Sowri Raja Pillai (External)
- Dr.S.Santhosh
- Mr. B. Murugan
- Mr.Gunalan

Brief Report :

Overview

The Faculty Development Program (FDP) on Computer Vision and Image Processing aimed to provide faculty with a comprehensive understanding of the principles and applications of computer vision technologies. With the rapid advancements in artificial intelligence and machine learning, this program focused on practical techniques and theoretical foundations essential for integrating computer vision into real-world applications. Participants engaged in hands-on workshops and discussions, exploring how these technologies can solve complex problems across various industries.

Objectives of the **FDP**

1. To enhance understanding of the fundamentals and advanced techniques in computer vision and image processing.
2. To provide practical skills for implementing computer vision algorithms in real-world

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scenarios.

3. To encourage interdisciplinary collaboration in research and application of computer vision technologies.
4. To foster innovative teaching methodologies in the field of computer vision.

Topics Discussed

- **Fundamentals of Computer Vision:** Introduced core concepts of computer vision, including image formation, camera models, and the basics of image representation. Emphasized the importance of understanding light, optics, and human vision in the context of machine vision.
- **Image Acquisition and Preprocessing:** Covered techniques for capturing images from various sources, including cameras and sensors. Discussed preprocessing methods such as noise reduction, histogram equalization, and image normalization to prepare images for analysis.
- **Feature Detection and Matching:** Explored algorithms for detecting and describing key features in images, such as SIFT, SURF, and ORB. Discussed applications of feature matching in image stitching, object recognition, and 3D reconstruction.
- **Object Detection and Recognition:** Discussed state-of-the-art techniques for identifying and classifying objects within images using traditional methods and deep learning approaches. Covered popular frameworks like YOLO and Faster R-CNN.
- **Image Segmentation:** Introduced methods for partitioning images into meaningful segments, covering techniques like thresholding, clustering, and advanced methods such as watershed and graph-based segmentation.
- **Deep Learning for Computer Vision:** Delved into the application of deep learning

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models, particularly convolutional neural networks (CNNs), in image classification, detection, and segmentation tasks. Discussed training strategies and transfer learning techniques.

- **Face Detection and Recognition:** Explored algorithms and systems for detecting and recognizing faces in images, including the use of deep learning models and traditional methods. Discussed ethical considerations and real-world applications such as security and social media.
- **Motion and Tracking:** Addressed techniques for detecting and tracking moving objects in video sequences. Covered algorithms such as optical flow and Kalman filtering for real-time applications in surveillance and robotics.
- **3D Vision and Stereoscopy:** Discussed methods for extracting depth information from images, including stereo vision techniques and depth cameras. Covered applications in robotics and augmented reality.
- **Real-World Applications:** Highlighted various applications of computer vision across industries, including healthcare (medical imaging), agriculture (crop monitoring), automotive (autonomous vehicles), and retail (customer analytics). Discussed case studies that showcase the impact of computer vision technologies.

Outcomes of the FDP

Participants reported a significant enhancement in their understanding of computer vision and image processing technologies. Faculty members expressed increased confidence in teaching these subjects and implementing practical projects in their curricula. The program facilitated collaboration among participants, encouraging interdisciplinary research opportunities. Faculty also discussed creating resource materials and workshops to further engage students in the field.

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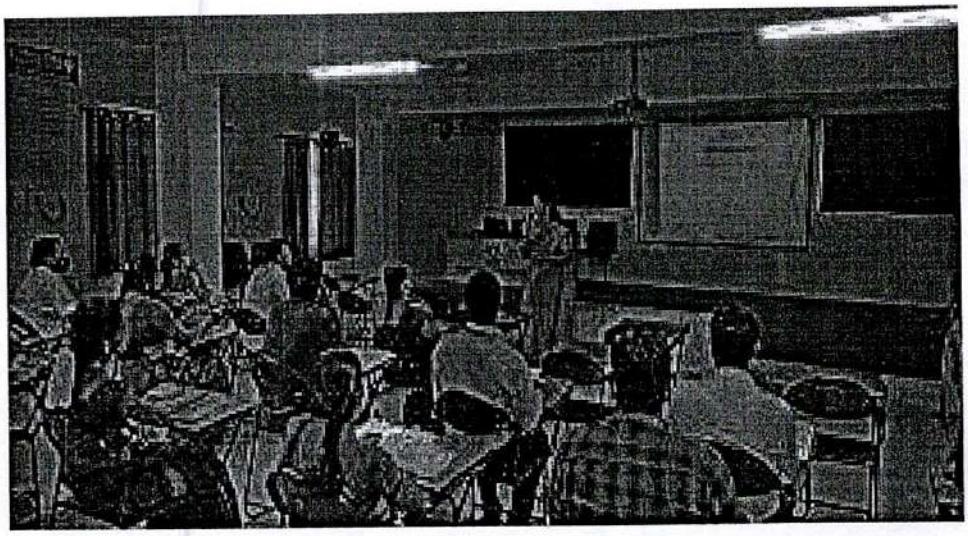
The hands-on experience with deep learning tools and frameworks positioned faculty to integrate these technologies effectively into their courses, fostering innovation and application in real-world contexts.



Conclusion

The FDP was a pivotal step in advancing the knowledge and skills of faculty at RAAK College of Engineering and Technology in the field of computer vision and image processing. It highlighted the transformative potential of these technologies in various sectors and set the foundation for future educational initiatives and research collaborations in this exciting area of study.

COORDINATOR

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FACULTY DEVELOPMENT PROGRAM- ATTENDANCE

TOPIC: Computer Vision & Image Processing For Real – World Applications

S.NO	NAME OF THE FACULTY	DEPT.	DESIG.	16.12.2019	17.12.2019	18.12.2019	19.12.2019	20.12.2019
1	Mrs.R.SARASWATHY	AP	S & H					
2	Mr. P. RADJA	AP	S & H	R. Raja	R. Raja	R. Raja	R. Raja	R. Raja
3	Ms. N. BHUVANESWARI	AP	S & H					
4	Mr. G. SHANMUGAM	AP	S & H					
5	Mr. K. RAJAKUMAR	AP	S & H	Rajak	Rajak	Rajak	Rajak	Rajak
6	Mr. G. DEVARAJ	AP	S & H	G. Dev	G. Dev	G. Dev	G. Dev	G. Dev
7	Mrs. S.MEENA KUMARI	AP	S & H	Meenah	Meenah	Meenah	Meenah	Meenah
8	Ms. K. JAMUNA	AP	S & H					
9	Ms. S. MEENAKSHI	AP	S & H					
10	Ms. L. ROGINIDEVI	AP	S & H	L. Rosd	L. Rosd	L. Rosd	L. Rosd	L. Rosd
11	Ms. S. ARULJOTHY	AP	S & H	S. Aul	S. Aul	S. Aul	S. Aul	S. Aul
12	Mr. R. SARAVANAN	AP	S & H	R. Sa	R. Sa	R. Sa	R. Sa	R. Sa
13	Mrs.M.JANCI	AP	S & H	M. Fin	M. Fin	M. Fin	M. Fin	M. Fin
14	Mr. S. SIVASANKARAN	AP	IT	S. Sivas	S. Sivas	S. Sivas	S. Sivas	S. Sivas
15	Mr.L. JAYA CYRIL BRITTO	AP	IT	Britto	Britto	Britto	Britto	Britto
16	Mrs. R. NATHIYA	AP	IT	Nathiya	Nathiya	Nathiya	Nathiya	Nathiya
17	Ms.S. ISWARYYA	AP	IT	S. Isw	S. Isw	S. Isw	S. Isw	S. Isw
18	Mr. P. RAVISASHTHIRI	AP	IT	Pavi	Pavi	Pavi	Pavi	Pavi
19	Ms. A. SHRUTHI AISWARYA	AP	IT					
20	Ms. S. KALAICHELVI	AP	IT	Kalai	Kalai	Kalai	Kalai	Kalai

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23	Mrs.R.SUGANYA	AP	CSE						
24	Ms. T. GEETHALAKSHMI	AP	CSE						
25	Ms. R. RANJANI	AP	CSE						
26	Mrs. J. ROSELIN LOURD	AP	CSE						
27	Mrs. S. RAJASRI	AP	CSE						
28	Ms. K. MONICA	AP	CSE						
29	Mrs. S. ABARNA	AP	CSE						
30	Ms. G. PREETHI	AP	CSE						
31	Mrs. C. THANGALATHA	AP	CSE						

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