



JODHPUR INSTITUTE OF
ENGINEERING AND TECHNOLOGY



MECHLITE

Dept. of Mechanical Engineering
Issue - 9 | December, 2016 | Half Yearly Newsletter



JIET

Group of Institutions

www.jietjodhpur.ac.in

VISION

To become a globally recognized institution in technical and professional education, and to provide career and research oriented, value based education to serve the society.

To develop a holistic educational approach that blends fundamentals and hands-on experience.

To build a diverse academic environment that fosters problem solving ability, team spirit, leadership, and commitment towards quality.

To promote exchange of ideas, innovation, research and entrepreneurial skills so as to face global challenges.

To inculcate ethical values and sense of responsibility towards society.

MISSION

Programme Educational Objectives

All objective are not static but they have to be maintained dynamic and flexible within frame work of basic parameters including preparation of core competence, breadth, professionalism and at last learning environment. Under the present global scenario, Program educational objectives (PEOs) realized and recognized are mentioned as below:

Objectives are not static; they need to be dynamic and flexible within the frame work of basic parameters including preparation of core competence, breath, professionalism and learning environment. Under the present global scenario, program educational objectives (PEOs) realized and recognized are mentioned as below:

- I. To provide students with a sound foundation in mathematical, scientific and engineering fundamentals necessary to formulate, solve and analyze engineering problems and to prepare them for higher studies and research.
- II. To develop the ability among students to synthesize data and technical concepts for application in product design and development with innovation, invention and creativity.
- III. To develop the ability of the students in solving complex engineering problems using computational techniques.
- IV. To enrich the intellectual skills of the students for analysis so as to provide opportunity to work as part of team on multidisciplinary projects.
- V. To prepare students for successful career in industry that meets the needs of national and international companies. To have multidirectional and multifunctional knowledge to fit in the varying and demanding employment opportunities self-explored or available in today's industrial world within country and across the world.
- VI. To promote awareness among the students about life-long learning through motivation and to introduce to them professional ethics and codes of professional practice.
- VII. To achieve perfection to bridge the gap between knowledge received and conceived in the subjects - theoretically and practically.



Programme Outcomes

Programme outcomes are the knowledge, skills and abilities students possess on successful completion of curriculum so as to have the following outcomes from the programmes:

- a. Graduates will demonstrate basic knowledge in Mathematics, science and engineering.
- b. Graduates will demonstrate the ability to identify, analyze and design and conduct experiments, interpret and analyze data, and report results.
- c. Graduates will demonstrate the ability to design a mechanical system or a thermal system or a process that meets desired specifications and requirements.
- d. Graduates will demonstrate the ability to function in engineering and science laboratory in teams, as well as on multidisciplinary design team to propagate research environment.
- e. Graduates will demonstrate the ability to identify, formulate and solve mechanical engineering problems.
- f. Graduates will demonstrate an understanding of their professional and ethical responsibilities.
- g. Graduates will be able to communicate effectively in both verbal and written form so as to compete in national and global environment and succeed in competitive examination like GRE, GATE, IES, CAT, MAT and UPSC etc.
- h. Graduates will have the confidence to apply engineering solutions in global and societal contexts and develop eco-friendly products and solutions.
- i. Graduates will be capable of self-education and clearly understand the value of lifelong learning.
- j. Graduates will be broadly educated and will have an understanding of the impact of engineering on society and demonstrate awareness of contemporary issues.
- k. Graduates will be familiar with modern engineering software tools and equipment to analyze mechanical engineering problems.
- L. Graduates will demonstrate the modern management skill, knowledge, finance and quality of leadership at the time of team performance.

The background of the bottom half of the page is a dark, textured surface with various mechanical engineering drawings and diagrams overlaid. These include gear trains, shafts, bearings, and cross-sections of mechanical components. The text 'MECHANICAL ENGINEERING' is prominently displayed in the center of this section.

**MECHANICAL
ENGINEERING**

The HEAD Converses ...



The legacies are never tangible wealth, they are intangible and include value systems, pursuit of excellence, spirit, sincerity, hard work, respect and compassion for others, which genuinely enrich and empower today's youth.

Best wishes,

Prof. M.R. Baid
HOD, ME (JIET)

From the Editor's Desk

It gives me an immense pleasure by presenting to you 8th edition of MECHLITE (July-December- 2016). The magazine includes the activities undertaken in the Department in the past six months. We aim to continuously grow in the field of academics and also in co-curricular activities. We joyously present to you the edition and hope that it gives our readers intellectual pleasure.



Mr. Abhishek Dixit
Asst. Prof. (Sr.)
Dept. of Mechanical Engg.



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FACULTY DEVELOPMENT PROGRAMME 2016

Number of activities took place including expert lectures, lab sessions and workshops. The details of FDP 2016 are as follows:

- Faculty members attended a two-day industrial training in local industries of Jodhpur for example, Kansara Bearings, U & T Tractors, Raj Pump ETC. on July 8-9, 2016.
- Prof. (Dr.) Rajendra Karwa (Campus Director, JIET) interacted on 'Academic Excellence' on July 11, 2016.
- Prof. Dr. Manish Kumar (Associate Professor, JNVU) delivered an expert lecture on 'Patents' on July 12, 2016.
- A panel discussion took place under the supervision of Prof. M.R. Baid (HOD, ME) on 'Academics' on July 13, 2016.
- Prof. M.R. Baid (HOD, ME) took a lecture on 'Outcome Based Teaching' on July 13, 2016.
- A panel discussion took place under the supervision of Prof. M.R. Baid (HOD, ME) on 'Administration' on July 14, 2016.
- Prof. L.N.C Agarwal (Retd. Prof., JNVU) delivered an expert lecture on 'Sampling theory' on July 15, 2016.
- Prof. (Dr.) Manish Bhandari (Prof. & Asst. Dean, AAJ) took a session on 'Research Methodology' on July 16, 2016.
- Prof. Manish Bafna (Associate Professor) took a session on 'Academics and Administration' on July 16, 2016.
- Prof. M.R. Baid (HOD, ME) delivered a presentation on 'NBA Appeal' on July 18, 2016.
- Prof. M.R. Baid (HOD, ME) took a lecture on 'Practical Geometry' on July 19, 2016.
- Prof. Dr. Rajat Bhagwat (Prof., JNVU) delivered an expert lecture on 'Metal Cutting' on July 20, 2016.
- Faculty members of Department of Mechanical Engineering attended a workshop on 'ANSYS' under Mr. Sandeep Gupta (PhD scholar, IIT Jodhpur) from July 12-14, 2016.

GUEST LECTURES (EXPERTS FROM OUTSIDE JGI)

- Prof. LNC Agarwal (Retd. Prof., JNVU) delivered an expert lecture on 'Acceptance Sampling' to third year students (5G, 5H, 5N) on September 28, 2016.
- Mr. Sandeep Gupta (Ph.D. Scholar. IIT Jodhpur) delivered a lecture on 'Higher Degree Element' to the Final Year students (7G, 7N) on October 20, 2016.
- Mr. Rajat Saxena (Alumni (Batch 2012-16) JIET) had an interaction with the second year students (3G, 3H and 3N) on November 5, 2016 regarding academics.

EXPERT LECTURES (EXPERTS FROM WITHIN JGI)

- Prof. M.R. Baid (HOD, ME) delivered expert lectures on 'Linear Programming' to Final year students (7N) on August 22 and 23, 2016.
- Mr. Sunil Gupta (Assoc. Prof., ME) delivered an expert lecture on 'Conduction with Heat Generation' to the III Year students (5N) on August 29, 2016.
- Mr. Alakshendra Pratap Singh (Asst. Prof, ME) delivered an expert lecture on 'Angle measuring device' to third year students (5G) on September 26, 2016.
- Mr. Rakesh Narawat [Asst. Prof. (Sr. Scale)] delivered an expert lecture on 'Over Drive' to third year students (5H) on September 27, 2016.
- Mr. Abhishek Dixit [Asst. Prof. (Sr. Scale)] delivered an expert lecture on 'Demand and Supply' to third year students (5G) on September 27, 2016.
- Mr. Abhishek Dixit [Asst. Prof. (Sr. Scale)] delivered an expert lecture on 'Demand and Supply' to third year students (5H) on September 28, 2016.
- Mr. Manoj Kumar (Asst. Prof, ME) delivered an expert lecture on 'Diamond Tools' to Final year students (7H) on September 29, 2016.
- Prof. M.R. Baid (HOD, ME) delivered an expert lecture on 'Game theory' to the Final year students (7H) on October 8, 2016.
- Prof (Dr.) Punita Soni (HOD, MBA) delivered expert lectures on 'Monetary and Fiscal policy' to the Third year students (5H, 5N) and 5G on October 7 and October 15, 2016 respectively.
- Mr. Manish Bafna (Assoc. Prof (Dept. of ME) and Asst. Dean, SSW and Proctor) delivered lectures on 'Psychometry' to the Final year students (7G, 7H, 7N) on October 3 and 21, 2016.
- Mr. Manish Bafna (Assoc. Prof (Dept. of ME), Asst. Dean, SSW and Proctor) delivered lectures on 'Steam' to the Third year students (3G, 3H, 3N) on October 17-18 and October 20-22, 2016.
- Mr. Sunil Gupta (Assoc. Prof, ME) delivered an expert lecture on 'Basics of Centrifugal Pump' to final year students (7H) on October 6, 2010.
- Mr. Abhishek Dixit [Asst. Prof. (Sr. Scale), Dept. of ME] delivered a lecture on 'Scheduling and Sequencing' to the Final year students (7G, 7H, 7N) on October 16, 2016.
- Mr. Manoj Kumar (Asst. Professor, Dept. of ME) delivered an expert lecture on 'Diamond tools to the Final year students 7N and 7 G on October 3 and 5, 2016 respectively.
- Mr. Alakshendra Pratap Singh (Asst. Prof (Dept. of ME) delivered an expert lecture on 'Laser Metrology' to third year students (5G) and (5N) on October 16 and October 21, 2016 respectively.
- Mr. Vikas Dave (Asst. Prof (Dept. of ME) delivered a lecture on 'Basic Economics' to the Third year students (5N) on October 5, 2016.
- Prof. (Dr.) Manish Bhandari (Prof. & Asst. Dean, AAJ) delivered an expert lecture on 'Theory of failure' to the II year students (3N) on November 17, 2016.
- Mr. Manish Bafna (Assoc. Prof and Asst. Dean, SSW) delivered an expert lecture on 'Psychometry' to the Final year students (7G, 7H, 7N) on November 5, 2016.
- Mr. Manish Bafna (Assoc. Prof and Asst. Dean, SSW) delivered lectures on 'Steam' to the II year students (3G, 3H, 3N) on November 12 and November 15, 2016.
- Mr. Manish Bafna (Assoc. Prof and Asst. Dean, SSW) delivered an expert lecture on 'Thermodynamic relations' to the second year students (3N) on November 7, 2016.
- Mr. Ashwani Mathur (Assoc. Prof.) delivered an expert lecture on 'Gyroscope' to the III year students (5N) on November 5, 2016.
- Mr. Mohit Ostwal (Asst. Prof.) delivered an expert lecture on 'Powder Metallurgy' to the II year students (3N) on November 18, 2016.

TECHNICAL SESSIONS

Quiz Competition (Institution of Engineers)

The department organized a quiz competition for the student members of Institution of Engineers (INDIA) on August 31, 2016. The quiz was conducted to test the general knowledge of the students. The introductory speech was delivered by Prof. O.P. Vyas (Dean (Engg. (JIET))). The session was concluded by a motivational speech given by Prof. Sanjay Bhandari (Dept. of ECE (JIET)). The Technical coordinator of the event was Mr. Vikas Dave (Asst. Prof. (Dept. of ME (JIET))). Faculty coordinator for the event was Mr. Abhishek Dixit and the student coordinator was Naveen Kumar (III Year (Mechanical Engg, branch)). A total 13 student members participated in the quiz competition.

The event was concluded with the speech of Prof. M.R. Baid motivating the students to take active part in the activities conducted and to organize more and more conferences time to time. The winners of the competition are as follows:

- I Position : Rajeev Parihar
- II Position : Aakash Deep Singh
- III Position : Kanish Varshney



Quiz Competition (ISTE)

A quiz competition was organized in Department of Mechanical Engineering, JIET Coed, Jodhpur under the theme of "India-Fragrance of Knowledge" on August 31, 2016. The quiz was focused to test the general knowledge of students regarding the country. The event was inaugurated by Prof. M.R. Baid (HOD ME, JIET Coed), Prof. O.P. Vyas (Dean Engineering, JIET Coed) and Prof. Sanjay Bhandari (Chief coordinator, Technical Cell, JIET Coed). Prof. O.P. Vyas motivated and encouraged the students regarding the participation in different events in different areas which has to be conducted and organized by students only. A total of 26 students were present in the event from ISTE student chapter. The event was concluded by Prof. Sanjay Bhandari with a motivational speech followed by vote of thanks by Prof. M.R. Baid and encouraging the students for participation in such events. The event was held under the coordination of faculty coordinator Mr. Mohit Ostwal and technical Coordinator Mr. Vikas Dave. Student coordinators were Mohit Chhangani and Mahendra Malhotra.

Results of the events are:

- I Prize : Pawan Kateeriya
- II Prize : Vikas Joshi
- III Prize : Vikram Singh Solanki, Subham Rawal

Inaugural Ceremony ISHRAE

The department of Mechanical Engineering (JIET Jodhpur) organized an Inaugural Ceremony of Indian Society of Heating Refrigerating and Air Conditioning Engineers (ISHRAE) JIET Student chapter at 03/09/2016 at MBA Conference Hall. Inaugural ceremony was graced by Prof. (Dr.) Rajendra Karwa (Campus Director, JIET), Prof. O.P. Vyas (Dean Engg), Prof. M.R. Baid (HOD Mechanical), Mr. Ashwani Mathur (Assoc. Prof. and COE), Mr. Manoj

Kumar (Faculty Coordinator), Mr. Vikas Dave (Asst. Prof. and technical coordinator, ME) and the faculty members. Mr. Ashu Gupta (R.D. ISHRAE) was invited as the Chief Guest. Mr. Himanshu Jain (President ISHRAE Jodhpur sub chapter) and Mr. Arun Mehta (Ex. President ISHRAE Jodhpur sub chapter) were special guests. A technical talk was also delivered by the Chief Guest on "Green Building". Aman Sachdeva (President), Kanishk Varshney (Elect. President), Kunal Joshi (Secretary), Kapil Shivlani (Treasurer) and Abhishek Mishra, Sachin Siwatch (Associate Member) were selected and appointed by the Chapter. An overview of the session was given by Prof. (Dr.) Rajendra Karwa (Campus Director (JIET)) after the talk. Prof. M.R. Baid delivered the concluding remarks for the session.



- **Technical Exhibition at Institution of Engineers**

1 position winners of working model category of Open House-2016 participated in the Technical exhibition entitled, organized by Institution of Engineer's (India), Jodhpur Local Centre, on Sept. 15, 2016 on the occasion of Engineer's Day Celebration.

- **Technical Activity carried out by Student Chapter (ISHRAE)**

ISHRAE Jodhpur Sub Chapter organized a special lecture on the topic, "Indoor Air Quality" by distinguished guest Mr. N.S. Chandrasekhar on 26-11-2016 at Hotel Chandra Imperial. The event was hosted by student Aman Sachdeva (President ISHRAE JIET Student Chapter). The parameters which affect Indoor Quality in Air Conditioning and the Basics Of Designing, Designing Parameters among others were discussed.



SEMINARS/WORKSHOPS/CONFERENCES / TECHNICAL ACTIVITIES ORGANIZED BY THE DEPARTMENT:

A workshop on "Preparing a Student for Job Interview" was conducted by NITTTTR Chandigarh through ICT on October 7, 2016. The faculty coordinator for the event was Mr. Manoj Kumar (Asst. Prof., Dept. of ME).

OPEN HOUSE 2016

Theme: "Skill Development by Young Engineers to Reform the Core Sector: Vision 2025"

Details of the number of Charts/Working Models/Non-working Models:

S.No	Category	No. of Entries
1.	Charts & Posters	16
2.	Working Models	21
3.	Non Working Models	01

Details of Technical Games:

- **Wire Loop Game:** It involves guiding a metal loop, from starting to end point along the serpentine length of the wire without actually touching the loop to the wire. It is a hand-eye coordination game.
- **Logo Game:** To identify the logo of a company and tell the name of company.

Glimpse of Open House-2016



OPEN HOUSE – 2016

Prof. M.R. Baid (HOD, Mechanical Engineering) JIET) and faculty members of the Department, members of the Student chapter and students. The event began with the welcome of the ated the importance of the ISTE student chapter to the students and motivated to have at least one activity every month.

A Quiz competition was organized for the students after the inaugural ceremony. The quiz was related to technical and general awareness and quantitative reasoning. A total of **38** students actively participated in the event. The event was coordinated by faculty advisor Mr. Mohit Ostwal (Asst. Prof.) and student coordinators Mohit Chhangani and Mahendra Malhotra under the guidance of Prof. M.R.Baid. Results of the quiz are as follows:

- I Prize : Harsh Jain (II Year)
- II Prize : Vineet (II Year)
- III Prize : Vikram Singh Solanki (II Year)

Chart, Poster & Flexi Competition

S. No.	Code	Position	Title Of Model	Names of Students	Sem
1	ME/ FL-1	I	Difference Between Conventional & Advanced Machining Process	Naveen Kumar	V (H)
2	ME/ FL-9	II	Scram Jet Engine	Mohit Jain	VII (H)
				Ratna Shekhar	
3	ME/FL-11	III	Acceptance Sampling	Aakarsh Gupta	VII(N)
				Happy Kumar Charan	

Working Model Competition

S. No.	Code	Position	Title Of Model	Names of Students	Sem
1	Me/ WM-12	I	Gearless Power Ransmission System	Tanmay Jangid	III (H)
				Sourabh Mathur	
2	Me/ Wm-26	II	Electrical Go- Cart	Harendra Ram	III(N)
				Abhishek Siddhawat	
				Abhiyanshu	
3	ME/ WM ₂	III	Cannon	Dhruv Raj Singh Rawat	III (N)

Non- Working (Static) Model Competition

S. No.	Code No.	Position	Title Of Model	Names of Students	Sem
1	ME/ NWM-1	I	Governer	Prateek Singh	V (H)
				Shantanu Shrivastava	V (H)
				Sachin Siwatch	V (H)



CELEBRATIONS

Guru Purnima Celebration

Guru Purnima was celebrated in the department of Mechanical Engineering on July 19, 2016. Prof. (Dr.) Rajendra Karwa (Campus Director, JIET) motivated the faculty members to work hard and enhance their skills in the field of academics.



Teachers' Day Celebration

On September 5, 2016 the Mechanical Engineering Department of JIET celebrated Teachers' Day for the teachers and students of Mechanical Engineering Department. Mr. R.S Chhatrawat (Dy.HOD,ME) motivated and encouraged the students regarding the participation in different events in different areas which are to be conducted and organized by students only. A skit was performed by some students on, "What is the Importance of a Teacher in Our life". On this auspicious day, students sang songs and gave speeches. A Sketch Competition was also organized. Students made sketches on the theme, "Recent Trends in Technologies". The sketches were splendid. The Essay Competition was also conducted. The event was concluded by Mr. Pawankumar Bissa (Dy.HOD,ME) with a motivational speech followed by vote of thanks by the technical Coordinator Mr. Vikas Dave and faculty coordinator Mr. Abhishek Dixit.

Results: Dilshad Khan (I), Vishvendra Pratap Singh (II)



ACADEMIC RESULTS

B.Tech VI Semester (Batch: 2013-2017) Top Three Rankers

Names	Percentage
Girish Kumar Aswani	85.5%
Mohit Agrawal	82.4%
Vikram Singh Chahar	82%

B.Tech IV Semester (Batch: 2014-2018) Top Three Rankers

NAMES	Percentage
ARPIT MATHUR	81.1
CHANDAN SUTHAR	80.8
RAJENDRA KUMAR	80.8

FACULTY ACCOMPLISHMENTS

- A book titled, "Computational Solutions for FGM Plates under Thermo-Mechanical Loads" authored by Prof (Dr.) Manish Bhandari (Dept. of ME, JIET and Asst. Dean , Academic Administration of JGI-AA-J) has been published. The ISBN no. is 978-3-659-97333-8 and the Publisher's name is Lambert Academic Publishing.
- Mr. Neeraj Kumar Sharma (Asst. Prof.) completed his M.Tech. on the topic, "Thermochemical Analysis of FGM and Metal Beam for Rectangular and I-Section under the guidance and supervision of Prof. (Dr.) Manish Bhandari (Assoc. Prof. and Asst. Dean) from Jodhpur Institute of Engineering & Technology (JIET), Jodhpur.
- A paper titled 'Design and Efficiency Estimation of Solar Volumetric Air Receiver using CFD Technique' authored by Mr. Sandeep Gupta [Asst. Prof. (Sr. Scale), ME] has been published in PERIPEX (Indian Journal of Research), Vol. 5, Issue 8 (August 2016).
- Mr. Abhishek Dixit (Asst. Prof. (Sr) completed his M.E on the topic, 'Consumer Buying Behaviour using Artificial Neural Network: A Case study of Two-Wheeler purchase' under the guidance and supervision of Prof. (Dr.) Arvind Kumar Verma (Prof., JNVU) from M.B.M Engineering College, Jodhpur.
- Mr. Neeraj Kumar Sharma (Asst. Prof.) authored a book titled, "Thermo Mechanical Analysis of FGM and Metal Beam for Different Section" is published by Lambert Academic publishing.
- Mr. Mohit Ostwal (Asst. Prof.) authored a book on 'Prediction of Mechanical Properties of Epoxy/Carbon Nanotube Composites using Molecular Dynamics Simulation' is published by Lambert Academic publishing.



STUDENTS' ACCOMPLISHMENTS

- Naveen Kumar, Rajat Bhati, Rahul Tak, Rajul Ojha, Sachin Siwatch, Harsh Goel, Vishwendra pratap, Sahdev, Sameer, Chandradepp. Jeevan Choudhary and Puneet Verma (III Year students) attended a One Week Short Term Training Program on 'Advances in Energy Efficient Technologies' organized at 'Mechanical Engineering Department, Maulana Azad National Institute of Technology, Bhopal under TEQIP-II'. (September 26-30, 2016)
- Mohit Jain and Shubham Kaushik (Final Year) participated in the Inter- College Debate Competition at Poornima College, Jaipur and Sardar Patel University, Jodhpur on September 15, 2016 and September 30, 2016 respectively.
- Naveen Kumar (5H) participated in 'Hindi Debate Competition' organised at Lachoo Memorial College of Science and Technology, Jodhpur on October 22, 2016.

TECHNICAL QUESTION BANK

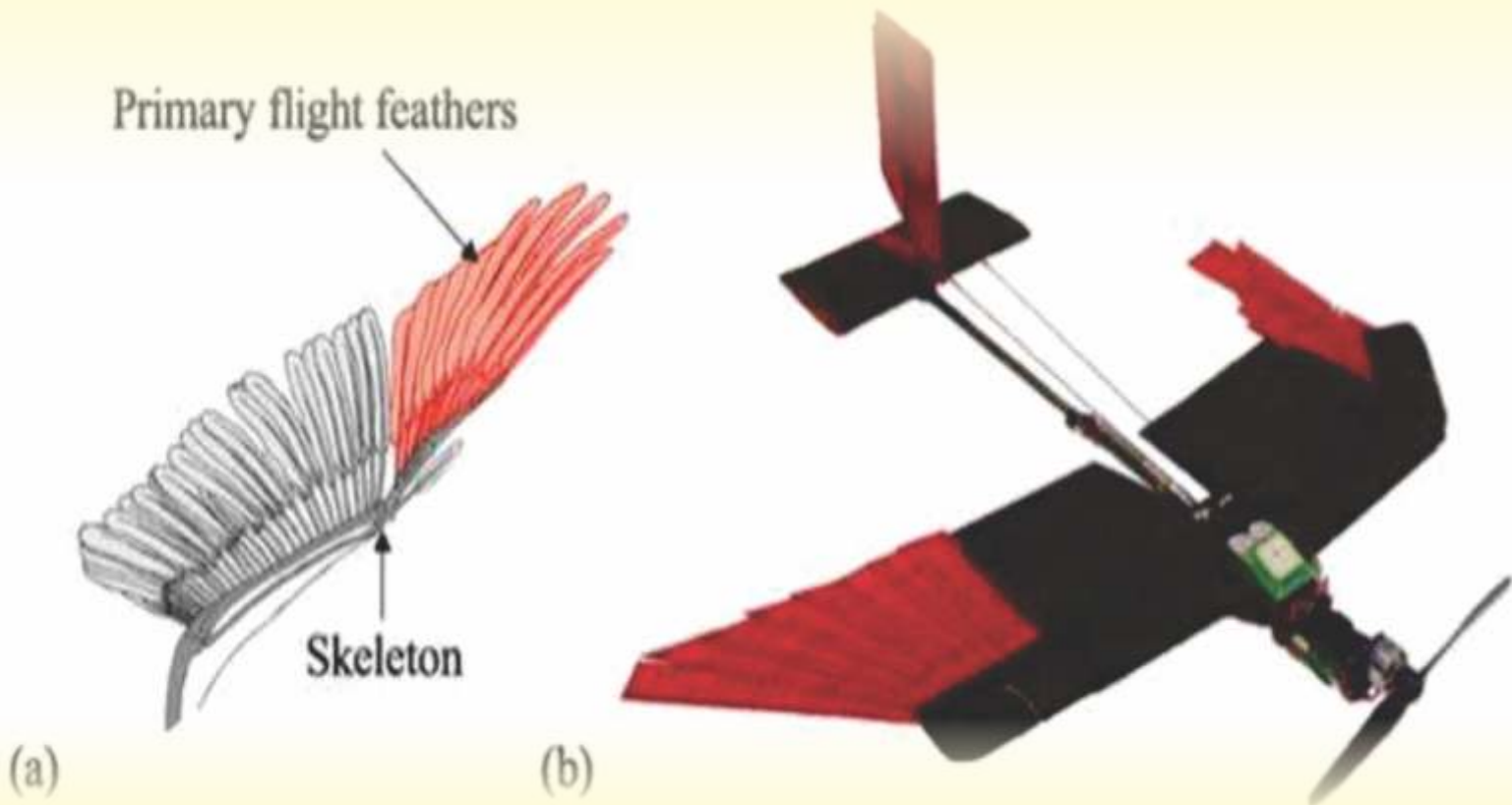
1. A graphical device used to determine the break-even point and profit potential under varying conditions of output and costs, is known as:
 - (a) Gantt chart
 - (b) flow chart
 - (c) break-even chart
 - (d) PERT chart
 - (e) Taylor chart.
2. Break-even analysis consists of:
 - (a) Fixed cost
 - (b) Variable cost
 - (c) Fixed and Variable costs
 - (d) Operation costs
 - (e) None of the above.
3. The break-even point represents:
 - (a) The most economical level of operation of any industry
 - (b) The time when unit can run without i loss and profit
 - (c) Time when industry will undergo loss
 - (d) The time when company can make maximum profits
 - (e) Time for overhauling a plant.
4. Work study is concerned with:
 - (a) Improving present method and finding standard time
 - (b) Motivation of workers
 - (c) Improving production capability
 - (d) Improving production planning and control
 - (e) All of the above
5. What does symbol 'O' imply in work study?
 - (a) Operation
 - (b) Inspection
 - (c) Transport
 - (d) Delay temporary storage
 - (e) None of the above.
6. What does symbol 'D' imply in work study?
 - (a) Inspection
 - (b) Transport
 - (c) Delay temporary storage
 - (d) Permanent storage
 - (e) None of the above
7. Material handling in automobile industry is done by:
 - (a) Overhead crane
 - (b) Trolley
 - (c) Belt conveyer
 - (d) All of the above
 - (e) None of the above.
8. String diagram is used when:
 - (a) Team of workers is working at a place
 - (b) Material handling is to be done
 - (c) Idle time is to be reduced
 - (d) All of the above
 - (e) None of the above.
9. Job evaluation is the method-of determining the:
 - (a) Relative worth of jobs
 - (b) Skills required by a worker
 - (c) Contribution of a worker
 - (d) Contribution of a job
 - (e) Effectiveness of various alternatives.
10. Micro motion study is:
 - (a) analysis of a man-work method by using a motion picture camera with a timing device in the field of view
 - (b) Motion study observed on enhanced time intervals
 - (c) Motion study of a sequence of operations conducted systematically
 - (d) Study of man and machine conducted simultaneously
 - (e) Scientific, analytical procedure for determining optimum work method.



ANSWERS

1. c	2. c	3 c	4 a	5 a
6 c	7 a	8 a	9 a	10 a

A DRONE THAT FLIES (ALMOST) LIKE A BIRD



Credit: Ecole Polytechnique Federale de Lausanne

A drone has been equipped with feathers to increase its precision during flight. The bio-inspired device can spread or close its wings while flying, making it easier to maneuver and more resistant in high winds.

When they need to change direction, increase their speed or counter headwinds, birds alter the configuration of their wings. To steer, for example, they spread one wing and slightly retract the other. By adjusting their wingspan in this way, they create a calculated imbalance that causes them to turn. Up to now, only birds could do this so effectively.

After observing birds in flight, researchers from the Laboratory of Intelligent Systems had the idea of building an energy-efficient winged drone capable of changing its wingspan, flying at high speed and moving through tight spaces. Their research has just been published in the Royal Society journal *Interface Focus*.

Dario Floreano and his team wanted to develop a bio-inspired drone that could meet various aerodynamic requirements. It had to be capable of flying between obstacles, making sharp turns and coping with strong winds. By changing its geometry mid-flight, the drone can meet all these criteria. The moving part is located on the outer wings. It works like a bird's quill feathers, which are the large feathers at the edge of the wing.

Read more at: <http://phys.org/news/2016-12-drone-flies-bird.html#jCp>

Work

Team



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