

To
The Dean -Academics
K L Deemed University
Vaddeswaram

Dear Sir,

Sub: Minutes of the 22nd BOS meeting-Mechanical Department held on 17-05-2022 in online mode in room no.M117(HOD Chamber),,

The 22nd BOS of Mechanical Department for 2022-23 Odd Sem is conducted on 17-05-2022 in online mode from 10:00 AM to 11:30 AM in room no.M117. The details of minutes and annexures of BOS conducted is attached below.

Thanking You,

Yours sincerely

Dr.D.V.A.Rama Sastry
Chairman BOS -ME



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Minutes of the 22nd BOS meeting, Mechanical Department held on May 17th 2022 in online mode form 10:00 AM to 11:30 AM

AGENDA ITEMS

- To present the Significant events of the department for the A.Y.2021-22 even semester.
- To consider and approve the resolutions made by DAC-1 conducted on 09-02-2022 and DAC-2 conducted on 12-03-2022.
- To consider and approve the curriculum of B.Tech & M.Tech programs offered for Y22 admitted batch students.
- Any other points with the permission of chair

AGENDA and RESOLUTIONS

AGENDA ITEM-1

Department Achievements for the A.Y.2021-22 Even Sem	Resolution Passed
Honours received by Faculty <ul style="list-style-type: none"> • Dr. B.Nageswara Rao, Professor is recognized as Recognized as Top Ranked Researchers in World 2% Researchers Category published by Elsevier • Dr.A.Srinath, Dean Skill Development and progression, Principal Academic Staff College, Achieved Bhartiya Gyan Ratna Award – Best Dean Of The Year by Global Scholars Foundation Honours received by Students <ul style="list-style-type: none"> • Mr. P Srimannarayana Raju (150070323) was awarded Gold Medal at Regional Competition – South in the skill “Additive Manufacturing” held from 1-12-2021 to 4-12-2021, by National Skill Development Corporation, India Skills 2021. • Mr. G. Durga Raj (190070025), Participated and stood 229th Position in 10M Rifle Men (ISSF) Civilian Championship and 460th Position in 10M Rifle Men (ISSF) National Championship, by 64th National Shooting Championship Competitions in RIFLE Events held at Bhopal, Madhya Pradesh • Mr. P Srimannarayana Raju (150070323), was Awarded Gold Medal at India Skills Competitions 2021, held at Talkatora Indoor Stadium, New Delhi in the skill “Additive Manufacturing” held from 7-1-2022 to 10-1-2022. Also won Cash Prize of Rs.1.00 Lakhs and Full paid training and air expenses, boarding expenses to participate at World Skills Competitions to be held in Shanghai, China in August 2022, 	BOS appreciated all the achievers of the department both faculty and students and congratulated the department faculty and staff who helped students to achieve their goals. The detailed list of events in given in Annexure-1 .



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by India Skills Competitions 2021, held at Talkatora Indoor Stadium, New Delhi 7-10 January 2022.

- Mr. Dasaradha Ramaiah (180079016), Mr. Bhargava Ramaiah (180079018) and Mr. Talari Vamsi (180079048), Won First Prize with 50,000/- Cash Prize on IDEABOX Season-2, a National Level Idea Competition by RootCap Business Consultants in association with Center for Innovation, Incubation & Entrepreneurship (CIIE) on 11-1-2022 conducted by IdeaBox Season – 2 by RootCap Business Consultants in association with CIIE.
- Mr. Rejeti Sriram Swaroop(190079022), Achieved appreciation from TELUGU BOOK OF RECORDS with title " FIRST INDIAN STUDENT TO REGISTER 18 INTELLECTUAL PROPERTY RIGHTS" on 21st March 2022, by Telugu Book of records

Placements

- 225 Placement offers were received by 140 registered students.
- The maximum package offered was 10 lakh and minimum of 3.36 lakhs with an average package of 5 lakhs per annum.

Ph.D Awards

- Mr. P. N. V. Bala Subrahmanyam, scholar of Dr. B.Nageswara Rao was awarded Ph.D in the month of Dec'2021.
- Ganesh Vijay More, scholar of Dr. Issac Prasad was awarded Ph.D in the month of Dec'2021.

Publications & Conference presenations

- 57 papers were published in various International Journals in the 2021 and 17 papers were published in the year 2022 till date.
- 17 papers were presented by faculty in various International Conferences in the year 2021 and 1 paper in 2022 till date.

Consultancy, Patents & Citations

- 21 faculty members have taken consultancy projects in various industries in the 2021-22 Even Sem.
- 91 Design patents were filed by students and faculty of the department in the A.Y.2021-22. A cumulative of 271 Design patents and 26 utility patents were filed by the students and faculty of the department.
- The patent applied by Dr.A.Srinath and Dr.G.Yedukondalu was granted.

BOS Chairman Congratulated all the award winners and achievers of the department.

AGENDA ITEM-2

DAC-1 & DAC-2	Resolution Passed
<p>1. By considering the feed back given by stake holders resolutions were made in DAC-1 held on 09-02-2022 on the curriculum of Y22 Admitted batch students.</p> <p>2. The revised Curriculum in DAC-1 was sent to stake holders to receive any further modifications and these resolutions were made in DAC-2 held on 12-03-2022</p> <p>3. The Job profiles from recruiters are taken and the required skills are proposed.</p> <p>4. It is proposed to offer Self learning Moocs Courses for the students who require more credits.</p> <p>5. Software tools are proposed which are mapped to the relevant courses offered to Y22 admitted batch students</p> <p>5. It is proposed to map the courses offered for Y22, Y21 batch students with various activities conducted at the department and central level and also to map the evaluation of these activities.</p>	<p>1. it is resolved to approve the resolution made in DAC-1.(Annexure-2, DAC-1 minutes)</p> <p>2. It is resolved to approve the resolutions made in DAC-2.(Annexure-3, DAC-2 minutes)</p> <p>3. It is resolved to approve the skill sets identified which are mapped to job profiles. (Annexure-4, Skill sets)</p> <p>4. It is resolved to approve the self learning MOOCs courses identified.(Annexure-5, Self learning courses).</p> <p>5. It is resolved to approve the software tools proposed.(Annexure-6)</p> <p>6. It is resolved to approve the activities and evaluation mapped to the courses (Annexure-7)</p>

AGENDA ITEM-3

Curriculum of B.Tech and M.Tech for Y22 Admitted batch students	Resolution Passed
<p>1. Following are the proposals made by the stake holders to be incorporated in the curriculum of B.Tech Y22 admitted batch students.</p> <ul style="list-style-type: none"> FM & HM(22ME2106) course is offered in 3rd semester instead of 4th semester with an L-T-P-S of 3-1-2-0. Analysis of Thermal Systems (CFD S/W-22ME2210) course syllabus is changed by incorporating concepts of IC Engines, gas turbines, refrigeration, unconventional energy. It is offered with an L-T-P-S 	<p>It is resolved to approve the proposed changes by the stake holders and to approve the two new specializations introduced. The detailed course structure is given in Annexure-13a, the detailed curriculum is in Annexure-13b, the detailed action taken report on stake holders feedback is in Annexure-13c.</p>



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of 3-1-0-4 in 4th Semester. (**Annexure-8(a)**)

- Numerical Computation for mechanical Engineers(22ME2209) with L-T-P-S-3-0-2-0, course syllabus is changed by incorporating scalar problems, dynamic analysis, statistical analysis. It is offered in 4th semester. (**Annexure-8(b)**).
- Lab experiments are included instead of skilling component for Instrumentation and Control Systems(22ME4120) is changed and is offered in semester-6 with an L-T-P-S of 2-0-2-0 (**Annexure-8(c)**).
- New Course Robotics(22ME3119 with L-T-P-S: 2-0-0-0) is introduced and is offered in 5th semester.(**Annexure-8(d)**).
- Universal Human Values (21UC0010 with L-T-P-S: 2-0-0-0) is offered in 4th Semester.
- Syllabus of Industry 4.0 & Cyber physical Systems(22ME3114 with L-T-P-S: 2-0-0-4) is changed and is offered in 7th semester (**Annexure-8(e)**).
- New Course titled “Thermal management and Electric and Electronic Systems”(22ME2107) is introduced as professional Elective under Energy & CFD specialization-**Annexure-8(f)**.
- Upon discussing with the BOS members to modify the credits of various category courses it is resolved to offer Thermodynamics(21ME2105) and Material technology(21PH2007) as ES(Engineering Sciences) courses and Production Technology course is offered as Management Elective(OE-4).
- It is proposed to introduce **Robotics & Mechatronics (Annexure-9) specialization in collaboration with Department of ECE and Modern Vehicle Technology (Annexure-10) specialization in collaboration with Department of EEE** in place of the existing specializations Automobile engineering, Product Design and Autotronics.

2. It is resolved to propose following 3 Minor degree programs with 10 course each out of which 2 are compulsory courses and from remaining 8 student can choose any course



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such that he/she can attain 20 credits at the end of the program.- (**Annexure-11**).

- i. Minor Degree in Mechanical Engineering
- ii. Minor Degree in Robotics & mechatronics
- iii. Minor Degree in Computational Fluid Dynamics

3. It is resolved to propose Honors degree program for advanced learners to earn more credits.(**Annexure-12**).

3. Following are the changes proposed by stake holders for Y22 admitted batch students in M.Tech-Machine Design(MD)& M.Tech-Thermal Engineering programs.

- Syllabus of M.Tech-MD program, Design with Advanced materials (22ME5118) is changed by including topics on Functionally graded materials, smart materials, nano materials and engineering applications of ceramics.
- Syllabus of M.Tech-MD-Program, Design for Optimization (22ME5222) course is changed by including topics on Optimization through MATLAB & Python programming
- Title of the M.Tech-MD program course, Advanced mechanisms is changed to Advanced Mechanisms & manipulator kinematics (22ME5112) and its syllabus is changed by adding software tool-ADAMS.
- Lab component is included for M.Tech-TE program course, Numerical method in thermal Engineering(22ME5109) using MATLAB with L-T-P-S:3-0-2-0).
- New Course titled “Engine performance and Emission control(22ME51F1)” (Topics of Engine Systems and performance & IC Engine Combustion and Pollution are combined) with L-T-P-S:3-0-0-0 is introduced in M.Tech-TE program as professional Elective
- New Course titled “Thermal management of Electric and Electronics Systems”(22ME51F2) with 3-0-0-0 L-T-P-S is proposed in M.Tech-TE program as Professional Elective.

3a. It is resolved to approve the changes proposed for M.Tech-MD Y22 admitted batch students(**Annexure-14**).

3b. It is resolved to approve the changes proposed for M.Tech-TE Y22 admitted batch students(**Annexure-15**)

AGENDA ITEM-4

Other Points	Resolution Passed
<p>1. It is resolved to propose the changes requested by course coordinators for the courses to be offered in 2022-23 Odd Sem</p> <ul style="list-style-type: none"> 20ME3114- Industry 4.0 & Cyber Physical Systems course Syllabus, CO-statements & Evaluation Plan are modified. 19ME4076-Automobile Engine System & performance Course CO-statements were modified, and L-T-P-S is modified as 3-0-0-0 in place of 2-0-2-0. 19ME4113-Petroleum Production Engineering-II course CO Statements were modified. 19UC0009-Ecology & Environment course CO Statements were modified. 20ME3113- Machine Design Course CO Statements were modified. 20ME3217-production and Operations management course CO statements were modified. <p>2. It is resolved to propose the Global Certifications to be offered to the students during the A.Y.2022-23 (Annexure-17)</p>	<p>1. It is resolved to approve the changes proposed by the course coordinators. (Annexure-16)</p> <p>2. It is resolved to approve the Global Certifications proposed.</p>





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Dr Srin Perla, Cyient D V A Ramasastry (Cohost) Prof. Venu Gopal RAVITEJAKOTA

Viewing D V A Ramasastry's screen - 91% +

Agenda-3: Curriculum of B.Tech & M.Tech of Y22 Batch

Y21		Y22	
Semester-5(Existing)	Category	Semester-5(Proposed)	Category
Problem Solving Skills-I (0-0-2-2)	BS	Problem Solving Skills-I (0-0-2-0)	BS
Dynamics of Machines (2-0-0-0)	PC	Dynamics of Machines (2-0-0-0)	PC
Heat Power Engineering (2-0-0-0)	PC	Optimization Techniques (2-0-0-0)	PC
Optimization Techniques (2-0-0-0)	PC	Mechanical Engineering Design & Innovation (FEA S/W) (2-0-0-4)	PC
Mechanical Engineering Design & Innovation (FEA S/W) (2-0-0-4)	PC	Manufacturing Technology (Linked to Project) (2-0-2-0)	PC
Manufacturing Technology (Linked to Project) (2-0-2-0)	PC	Robotics (New Course introduced) (2-0-0-0)	PC
Professional Elective - 1 (2-0-2-0)	PE	Professional Elective - 1 (2-0-2-0)	PE
Professional Elective - 2 (2-0-2-0)	PE	Professional Elective - 2 (2-0-2-0)	PE
Mid Grad Capstone Project - I (0-0-0-8)	PR	Mid Grad Capstone Project - I (0-0-0-8)	PR
TC=22, TH=36		TC=22, TH=36	

Participants (10)

- 3583 Kanthimathi Me
- CR083 Host
- D V A Ramasastry Cohost
- 3160 Dr S S Rao
- Dr A Srinath Dean S...
- Dr Srin Perla, Cyient
- Dr. G.Yedukondalu
- Prof. Venu Gopal
- RAVITEJAKOTA
- vijaya kumar

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Members Present

SL. NO	FULL NAME	DESIGNATION	ORGANIZATION	POSITION IN THE MEETING
1	Mr.D.V.A Rama Sastry	HOD-ME and Chairman-BOS	KLEF	Internal member
2	Dr.A.Venu Gopal	Professor	NIT Warangal	External member
3	Dr.R.Vijaya Kumar	Senior Manager, R& D	HAL Bangalore	External member
4	Dr.P.Srinivasa Rao	Global Traning Head	Cyient Technologies, Hyderabad	External member
5	Dr.K.Ravi teja	Manager	Hyundai R& D Division, Hyderabad	External member
6	Dr.K.Thirupathi Rao	Professor, Addl. Dean Academics	KLEF	Co-opted members
7	Dr.A.Srinath	Professor, Dean Skill Development & progression	KLEF	Internal member



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8	Dr.S.N.Padhi	Professor, Group Head, Design & manufacturing	KLEF	Internal member
9	Dr.S.S. Rao	Professor, Group Head, Robotics & Mechatronics	KLEF	Internal member
10	Dr.G.Murali	Professor& Group Head, Energy & CFD	KLEF	Internal member
11	Dr.K.V.Narsimha Rao	Professor, Associate Dean Quality	KLEF	Internal member
12	Dr.G.Yedukondalu	Associate Professor, Associate Dan Skilling	KLEF	Internal member
13	Dr.P.Kasi V rao	Associate professor, Associate Dean Academics	KLEF	Internal member
14	Dr.K.V.Durga Rajesh	Associate Professor	KLEF	Internal member
15	Mr.P.Ratna Prasad	Assistant Professor	KLEF	Internal member
16	Mrs. T.Kanthimathi	Assistant professor, Professor I/C Academics	KLEF	Internal Member

Dr. D.V.A. RamaSastry
HOD-ME, Chairman BOS

Annexures:

Annexure-1:

K L E F

Department of Mechanical Engineering

Significant Events happened in the Department from November -2021 to till date

1.0	Honours Received		
1.1	Honours received by Faculty		
Dept.	Name of the Faculty	Details of Honours	By
ME	Dr. B. Nageswara Rao	Recognized as Top Ranked Researchers in World 2% Researchers Category published by Elsevier	Elsevier
ME	Dr. A. Srinath	Achieved Bhartiya Gyan Ratna Award – Best Dean Of The Year	Global Scholars Foundation

1.2 Honours received by Students

Dept.	Name of the Student	Details of Honours	By
ME	Mr. P Srimannarayana Raju (150070323)	Awarded Gold Medal at Regional Competition – South in the skill “Additive Manufacturing” held from 1-12-2021 to 4-12-2021	National Skill Development Corporation, India Skills 2021
ME	Mr. G. Durga Raj (190070025)	Participated and stood 229 th Position in 10M Rifle Men (ISSF) Civilian Championship and 460 th Position in 10M Rifle Men (ISSF) National Championship	64 th National Shooting Championship Competitions in RIFLE Events held at Bhopal, Madhya Pradesh
ME	Mr. P Srimannarayana Raju (150070323)	Awarded Gold Medal at India Skills Competitions 2021, held at Talkatora Indoor Stadium, New Delhi in the skill “Additive Manufacturing” held from 7-1-2022 to 10-1-2022. Also won Cash Prize of Rs.1.00 Lakhs and Full paid training and air expenses, boarding expenses to participate at World Skills Competitions to be held in Shanghai, China in August 2022	India Skills Competitions 2021, held at Talkatora Indoor Stadium, New Delhi 7-10 January 2022
ME	Mr. Dasaradha Ramaiah (180079016) Mr. Bhargava Ramaiah (180079018) Mr. Talari Vamsi (180079048)	Won First Prize with 50,000/- Cash Prize on IDEABOX Season-2, a National Level Idea Competition by RootCap Business Consultants in association with Center for Innovation, Incubation & Entrepreneurship (CIIE) on 11-1-2022	IdeaBox Season – 2 by RootCap Business Consultants in association with CIIE
ME	Mr. Rejeti Sriram Swaroop (190079022)	Achieved appreciation from TELUGU BOOK OF RECORDS with title " FIRST INDIAN STUDENT TO REGISTER 18 INTELLECTUAL PROPERTY RIGHTS" on 21st March 2022	TELUGU BOOK OF RECORDS





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1.3 Placements Details

Sl. No.	Company Name	No. of students selected	Package (in Lakhs)
1	Infosys through infyqtq	1	3.36 LPA
2	Deloitte USI Consulting	8	7.76 LPA
3	TCS Ninja	10	3.36 LPA plus 50000 per annum HRA
4	TCS Digital	1	7 LPA
5	Cognizant Digital Nurture Phase-1 GenC	11	4 LPA
6	Cognizant Digital Nurture Phase-1 GenC Elevate	6	4.5 LPA
7	Capgemini in Analyst job role	15	4.0 LPA
8	HCL Technologies	11	4.75 LPA
9	WIPRO	31	3.6 LPA
10	KPIT	1	3.6 LPA
11	EPAM	1	6.0 LPA
12	Hyundai MOBIS	2	5.0 LPA
13	EY Global Delivery Services (GDS)	3	4.5 LPA
14	TCS Ninja Phase-1	4	3.36 LPA
15	Accenture	6	4.5 LPA
16	Accenture (ASE)	2	6.5 LPA
17	Technip FMC	6 (4 B.Tech and 2 M.Tech)	4.26 LPA



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		1 (M.Tech)	4.8 LPA
18	HCL	5	4.75 LPA
19	Hyundai Mobis Technical Center of India	3	4.5 LPA + benefits for Hyderabad location.
20	QuEST Global	6	3.25 LPA
21	BYJU'S - Bengaluru	2	10 LPA
22	Pin Click Property Management Pvt Ltd.,	9	4.8 to 5.16 LPA
23	ACC Concrete Limited	3	3.5 LPA
24	Turing minds	3	4 to 5 LPA
25	HCL Technologies	5	4.75 LPA
26	L&T Technology Services Ltd.	11	4.0 LPA
27	TekOne Location, Hyderabad	6	3.4 LPA
28	Technip FMC	1	6.75 LPA
29	Sri Kalahasthi pipes	5	2.4 LPA
30	JSW	3	8 LPA
31	KIA Motors	6	3 LPA
32	EY Global Delivery Services	3	6 LPA
33	Hyundai motors	1	6.65 LPA

KL Mechanical Engineering CATEGORY 1 UNIVERSITY NAAC ACCREDITED BY NAAC WITH 'A++' GRADE RANKED 35 AMONG 1000 COLLEGES IN INDIA 41 YEARS OF EDUCATIONAL EXCELLENCE

Hearty Congratulations To

Avu Shivani Reddy
180070204

K N S Sri Krishna Harsha
180070204

Mourya Viswa Rohit
180070202

JSW ₹ 8 Lakhs Per Annum

Mechanical Engineering Students got placed in JSW on 9th March 2022

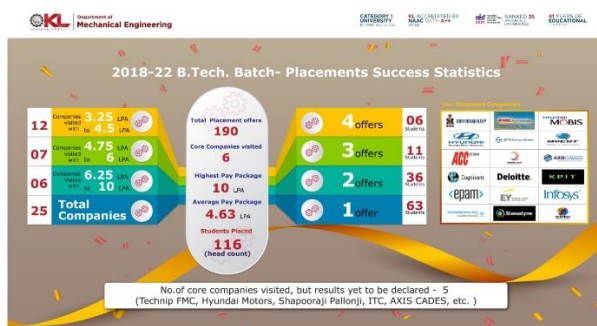
KL Mechanical Engineering CATEGORY 1 UNIVERSITY NAAC ACCREDITED BY NAAC WITH 'A++' GRADE RANKED 35 AMONG 1000 COLLEGES IN INDIA 41 YEARS OF EDUCATIONAL EXCELLENCE

Hearty Congratulations To

Milind Vardhan Peddakotla
180070112

Technip FMC ₹ 6.5 Lakhs Per Annum

Mechanical Engineering student got placed in Technip FMC on 3rd March 2022



KL Mechanical Engineering CATEGORY 1 UNIVERSITY NAAC ACCREDITED BY NAAC WITH 'A++' GRADE RANKED 35 AMONG 1000 COLLEGES IN INDIA 41 YEARS OF EDUCATIONAL EXCELLENCE

Hearty Congratulations to

K VAMSU
180075048

P SAI NITHAN
180070005

P SASHANK
180070056

EY ₹ 6.0 Lakhs Per Annum

Mechanical Engineering 3 Students are placed as a Tax Analyst

1.4	Ph.D. awarded			
S. No.	Dept.	Name of the Faculty/Scholar	Name of the Supervisor	Month and Year
1	ME	P. N. V. Bala Subrahmanyam	Dr. B. Nageswara Rao	December, 2021



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2	ME	Ganesh Vijay More	Dr. P. Issac Prasad	December, 2021
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2.0	Research Publications
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2.1	Number of Papers Published by Faculty
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S. No	Dept.	National Journals	International Journals
1	ME	-	57 in 2021 17 till date in 2022

2.2	Number of Papers Presented by Faculty
-----	---------------------------------------

S. No	Dept.	National Conferences	International Conferences
1	ME	-	17 in 2021 1 till date in 2022

3.0	Consultancy , Patents And Citations
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3.1	Consultancy
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S. No.	Name of the Faculty	Sponsoring Agency	Work
1	Dr. K. V. Ramana	KLEF-ME	Investigation of Mechanical Properties (Metals and Non Metals) using Nano 25 KN UTM
2	Dr. S. N. Padhi	AICTE-SLA PROJECT	AICTE-Student Learning Assessment
3	Dr. S. S. Rao	AICTE-SLA PROJECT	AICTE-Student Learning Assessment
4	Dr. S.S . Rao	Seeram Innovation Private Ltd. Flat no 8,Sunrise Towers Kunchanapalli,Guntur-522501	Modeling of Table Top CNC Machine
5	Dr. B. Nageswararao	Seeram Innovation Private Ltd. Flat no 8,Sunrise Towers Kunchanapalli,Guntur-522501	Design Of Table Top CNC Machine
6	Dr. Y. V. Hanumantha Rao	Seeram Innovation Private Ltd. Flat no 8,Sunrise Towers Kunchanapalli,Guntur-522501	Thermal Analysis of Tool and work piece of Table Top CNC Machine
7	Dr. P. V. Chalapathi	Seeram Innovation Private Ltd. Flat no 8,Sunrise Towers Kunchanapalli,Guntur-522501	Numerical Simulation and Validation of Table Top CNC Machine
8	Dr.A.Srinath	APSSDC	consultancy rendered to APSSDC
9	Dr. G.Murali	Bhass Engineering pvt ltd , Hosur	Thermal Management of UPS EB Inverter using nano enhanced PCM
10	Dr. KV Narasimha Rao	Cleantech Consultants, Bangalore	Design of a Dryer using Heat Pump
11	Dr. K Ramakrishna	Cleantech Consultants, Bangalore	Validation of Duct design done for air-conditioning system for Commercial



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			complex
12	Dr. P Issac Prasad	Cleantech Consultants, Bangalore	Estimation of CO2 emission from diesel generation sets and reduction methods
13	Dr. D V A Rama Sastry	Seeram Innovation Private Ltd. Flat no 8, Sunrise Towers Kunchanapalli, Guntur-522503	Smart Manufacturing of table top CNC machine tools
14	Dr. N. Tamiloli	Innovative Materials Pct. Ltd., Plot No-231P, Padma Nagar, Phase-II, Chintal, Hyderabad-500054.	Mechanical Testing of Reinforcement Composite Materials
15	N.Rajesh	Anantha Lakshmi Industries	Design and modeling of modular metal boxes and press tools
16	Dr. K V Durga Rajesh	Kollipara Electrodes Pvt. Ltd.	Design and model a table top machine to manufacture Consumable electrodes to use in Flux Shielded Metal Arc welding and Submerged Arc welding processes
17	Dr. P. Kasi Visweswara Rao	Kollipara Electrodes Pvt. Ltd.	Design and model a table top machine to manufacture Non-consumable electrodes to use in Tungsten Inert Gas (TIG) Welding Process
18	Dr. Abdul Munaf	R G Industries	Preparation of 3D printing
19	Dr. Atul Bhattad	R G Industries	The influence of hybrid nanofluid on the performance parameter of plate heat exchanger
20	Dr. M. Nageswara Rao	R G Industries	Expert system through artificial intelligence techniques
21	Dr. S. Sudhakar Babu	R G Industries	Investigation on the influence of hybrid nanofluid of pipe in pipe heat exchanger

3.2 Patents

Patent	This Academic Year	Cumulative
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Type	Design	Utility	Plant	Design	Utility	Plant
Filed	53	0	0	158	5	0
Published	0	0	0	0	21	0
Granted	38	0	0	113	0	0
Licensed	0	0	0	0	0	0
Total	91	0	0	271	26	0

4.0 Seminars / Workshops

4.1 Workshops / Seminars Attended by the Department through Virtual Mode

S. No.	Dept.	No. of Faculty	Seminar / Workshop / Short Term Course
1	ME	All Course Coordinators	Faculty Development Training Programme on “Preparing Effective Course Handouts” for course coordinators of engineering courses from 8th to 10th November 2021 organized by Academic Staff College - K L E F

4.2 Conferences/workshop/seminar Conducted by the Department through Virtual/Offline Mode

S. No.	Dept.	Conference/Workshop/FDP
1	ME	5 days FDP on “Thermal Analysis in Multi-Phase Systems” by Dr. V. Teja Reddy and Dr. Sudev Das, Assistant Professors, Department of Chemical Engineering, NIT Calicut from 1 st to 6 th December, 2021.
2	ME	5 days FDP on “Product Design and Modeling using CATIA” by Mr. U. Sumanth, Dassault Systems Trainer, from APSSDC from 6 th to 10 th December, 2021.
3	ME	One day Seminar on “PUMPS MANUFACTURING – A CASE STUDY” by Mr. K. Krishna Kumar, General Manager (Production), Kumar Pumps on 30-12-2021.
4	ME	Conducted Mech – Project Expo (B.Tech & M.Tech) on 07-03-2022 from 11:00 A.M onwards at SAC Ground Floor.
5	ME	Organized a National Level Technical Fest – YANTRIK '22 based on the theme “ Adopt-Learn-Transform ” on 7 th and 08 th March 2022.



Department of Mechanical Engineering

CATEGORY 1 UNIVERSITY

KL ACCREDITED BY NAAC WITH A++

ISO 9001:2015 CERTIFIED

41 YEARS OF EDUCATIONAL

5 days FDP

THERMAL ANALYSIS IN MULTI-PHASE SYSTEMS


1st to 6th Dec, 2021



Resource Persons
Dr. Teja Reddy Vakamalla
Assistant Professor
Department of Chemical Engineering
NIT Calicut.



Dr. Sudev Das
Assistant Professor
Department of Chemical Engineering,
NIT Calicut



Department of Mechanical Engineering

CATEGORY 1 UNIVERSITY

KL ACCREDITED BY NAAC WITH A++

ISO 9001:2015 CERTIFIED

41 YEARS OF EDUCATIONAL

5 days FDP

PRODUCT DESIGN AND MODELING USING CATIA


6th to 10th Dec, 2021

10AM to 12:00 PM and 2:00 PM to 4:00 PM daily



Resource Persons
Mr U Sumanth
Dassault Systems Trainer
APSSDC.

FDP coordinators
Dr SN Padhi & Dr SSRao



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PROJECT EXPO



Register Now:
<http://bitly.ws/oWTz>

Venue:
S.A.C Hall
7th March 2022
from 11:00 am onwards

#yantrik.mesa



07th & 08th March 2022

#Adopt-Learn-Transform

NON-TECHNICAL EVENTS

PROJECT EXPO

TECHNICAL EVENTS

WORKSHOPS

Do Register:
www.yantrik.in

Registration Fee: 350/-

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<https://bitly/Yantrik22>

Chairman
Dr. B. Srinivasa Murthy
(Former General Manager, Engineering Design Centre, Group Antolin India Private Limited)

Convener
Dr. B. Srinivasa Murthy
(Associate Professor, ME)

Co-convener
Mr. V. Anand
(Incharge, MESA)

Chief Student Executive:
G. Mahesh Kumar Reddy
(S.A.C Hall)

N. Sri Sai Ganesha
(S.A.C Hall)

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5.0	Guest Lectures/Webinar
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5.1	Guest Lectures/Webinar Arranged through Offline Mode
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S. No.	Dept.	Name of the Guest Faculty	Date	On Topic
1	ME	Dr. Suresh Alapati, School of Mechanical and Mechatronics Engineering, Kyungsung University	19-01-2022	Alumni Guest lecture on “Simulation of Whirling Instabilities of an Elastic Rod in a Viscous Fluid using the Lattice Boltzmann Method Combined with Finite Element Method ”
2	ME	Dr. B. Srinivasa Murthy, Former General Manager, Engineering Design Centre, Group Antolin India Private Limited	12-03-2022	Guest Lecture on “Case Studies on Industrial applications of Geometric Dimensioning and Tolerancing”
3	ME	Mr. S. Chandrasekhar, Chennai	24-03-2022	Guest Lecture on “Mechanics of structures in Automobiles”
4	ME	Mr. K. Pavan Sai, Technical Specialist (Vehicle Dynamics), Continental Ag.	28-03-2022	Alumni Guest Lecture on “Motor cycle control functions for 2 wheels and power sports”

6.0 NSS Activities conducted through Virtual Mode				
S. No.	Dept.	Details of NSS Activities		Conducted On
1	ME	Conducted Free medical camp as a part of Special camp in Revendrapadu village from ME Dept., NSS Unit-3 by Top star hospital and Max vision Eye Hospital		20-04-2022



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కేఎల్ యూ ఆధ్వర్యంలో వైద్య పరీక్షలు దుగ్గిరాల(తెనాలిటౌన్): మండలంలోని రేవేంద్రపాడు గ్రామ పంచాయతీ కార్యాలయం ఆవరణలో కేఎల్ యూనివర్సిటీ మెకానికల్ డిపార్ట్ మెంట్, ఎన్ఎస్ఎస్ యూనిట్-3 ఆధ్వర్యంలో బుధవారం ఉచిత వైద్యశిబిరం నిర్వహించారు. విజయవాడ టాప్ స్టార్ హాస్పిటల్, మాక్స్విజన్ కంటి వైద్యశాల ఆధ్వర్యంలో ఏర్పాడిన శిబిరంలో వైద్యులు రోగులకు కంటిపరీక్షలు, బీపీ, షుగర్ పరీక్షలు చేశారు. ఉచితంగా మందులు పంపిణీ చేశారు. గ్రామసర్పంచ్ పలుకూరి మేరిమ్మ, వైఎస్సార్సీపీ నాయకులు శామ్మేలు, ఎన్ఎస్ఎస్ యూనిట్ అధికారులు పాల్గొన్నారు.

సాక్షి Thu, 21 April 2022
గంటూరు <https://epaper.saksh>

ఈనాడు
epaper.eenadu.net

కేఎల్ యూ విద్యార్థుల సేవ: రేవేంద్రపాడు (దుగ్గిరాల): కేఎల్ యూకు చెందిన మెకానికల్ విభాగం ఎన్ఎస్ఎస్ యూనిట్-3 విద్యార్థుల ఆధ్వర్యంలో బుధవారం రేవేంద్రపాడులో వైద్య శిబిరం జరిగింది. పలువురు వైద్యులు శిబిరానికి వచ్చిన ప్రజలకు నేత్ర, రక్తపోటు, చక్కెర నిర్ధారణ పరీక్షలు చేశారు. అవసరమైన వారికి ఉచితంగా మందులు ఇచ్చారు. సర్పంచి పలుకూరి మేరిమ్మ, జాతీయ సేవా విభాగం అధికారులు, విద్యార్థులు పాల్గొన్నారు.

Date : 21/04/2022 EditionName :
ANDHRA PRADESH(AMARAVATI
GUNTUR) PageNo :



Annexure-2
DAC-1 minutes

K L E F

DEPARTMENT OF MECHANICAL ENGINEERING

MINUTES OF DEPARTMENT ACADEMIC COMMITTEE (DAC)

KLEF/ ME/ IQAC - ACAD/AQ.5/ DCMs

Date: 09-02-2022

The 21st Department Academic Committee (DAC) Meeting was conducted at 1:30 P.M. on 09/02/2022 in HOD Cabin.

Agenda of the Meeting:

1. To discuss on the feedback given by the stake holders on the curriculum of 2022-23
2. To discuss on the inputs given by the course coordinators of 2022-23 syllabus, to be put forth in BOS
3. To approve the value-added courses offered in 2021-22 Even Sem
4. To propose the SAC activities for 2022-23 Odd Sem
5. To approve the revisions in syllabus proposed for M. Tech Machine Design for 2022-23 admitted batch.
6. Any other points with the permission of the Chair.

The following members were present:

1. Dr. D. V. A. Rama Sastry, Associate Professor & HoD, Chairman-DAC
2. Dr.K.RamaKrishna, Dean Quality, Member
3. Dr. A.Srinath, Dean Skilling, Member
4. Dr. S. S. Rao, Professor & PG Coordinator & R&M Group Head, Member
5. Dr. Y.V.Hanumantha Rao, Associate Professor & CFD Group Head, Member
6. Dr. P. Kasi V. Rao, Associate Professor & Deputy HoD, Member
7. Dr. G.Diwakar, Professor, IV Year Coordinator, Member
8. Dr. K. Lokesh, Associate Professor, Professor I/C Exams, Member
9. Mr. G. R. Sanjay Krishna, Associate Professor Professor I/C Counselling, Member
10. Mr. K. M. V. Ravi Teja, Assistant Professor II & III Year Coordinator, Member
11. Mrs. T. Kanthimathi, Assistant Professor & Professor I/C Academics, Member

Minutes:

1. HOD welcomed all the members to the meeting and presented the agenda items before the members.
2. Upon discussing the feedback given by the Y20 students to explain the importance of specialization courses before the starting of the semester, it is resolved to conduct an orientation on the specializations offered by the department earlier to the start of the semester, so that students can choose the specialization of their interest.



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3. Upon discussing the feedback given by Y20 students to make mechanical vibrations as core course instead of elective, it is resolved to include vibrations in Dynamics course which covers 90% of GATE syllabus
4. Upon discussing the feedback given by Y19 students to offer Autotronics and Automobile Engineering Courses in III-I and Automobile Engine Design and Alternate Energy sources in III-II, it is resolved to propose the changes in the Upcoming BOS.
5. Following are the proposals made based on the feedback given by stake holders
 - i. Academic peer Dr. K.S.S.Harish include basic concepts in thermodynamics and fluid mechanics it is propose the revise the syllabus of these courses
 - ii. Alumni Gampa Srinath suggested to include courses on industrial engineering and Production Planning. It is resolved to include course on production planning for Y21 and Y22 admitted batch students
 - iii. Alumni K.Lakshmi Narayana suggested to introduce Auto cad Design, it is resolved that AutoCAD is taught in Engineering Graphics course.
 - iv. Upon discussing the feedback given by Dr.K.Lokesh, in the course closure minutes and CO attainment data it is resolved to propose to include 1 tutorial in Fluid Mechanics & Hydraulic Machines Course, in BOS.
 - v. Upon discussing the feedback given by Mr.S.Ramesh, in the course closure minutes, to provide more hands on sessions for Machine learning course, it is resolved to propose the requirement in BOS.

After an elaborate discussion on the feedback given by the stakeholders on curriculum and CO-PO attainment data of earlier semester courses to Y22 admitted batch UG students, following are proposals made

- To offer Fluid Mechanics and Hydraulic Machines with 3-1-2-0 structure in II-I semester
- To review the syllabus of 21ME4120-Instrumentation & Control and 22ME3114-Industry 4.0 & Cyber Physical Systems.
- To merge Heat Power Engineering Course into Analysis of thermal Systems(ATS)and offer as one course with 3-1-0-4 L-T-P-S.
- To change the syllabus of Numerical Computation for Mechanical Engineers course and offer it in 4th semester with 3-0-2-0 structure .

It is resolved to propose the above said changes in the upcoming BOS.

8. It is resolved to approve the list of activities proposed for SAC

9. It is resolved to approve the list of value added courses proposed.

10. It is resolved to approve pre Ph.D courses for the A.Y. 2022-23

11. It is resolved to change the syllabus for the following M.Tech-Machine Design courses as proposed by the group heads upon feedback received from course coordinators with effect from 2022-23 admitted batch

- Advanced Mechanisms
- Modelling & Analysis-II (FEM)



(Dr. D.V.A. Ramasastry)
Chairman – DAC



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Annexure-3

DAC-2 minutes

K L E F

DEPARTMENT OF MECHANICAL ENGINEERING

MINUTES OF DEPARTMENT ACADEMIC COMMITTEE (DAC-2)

KLEF/ ME/ IQAC - ACAD/AQ.5/ DCMs

Date: 12-03-2022

The 21st Department Academic Committee (DAC-2) Meeting was conducted at 1:30 P.M. on 12/03/2022 in HOD Cabin.

Agenda of the Meeting:

7. To discuss on the feedback given by the stake holders on the curriculum of 2022-23
8. To discuss on the inputs given by the Group Heads on 2022-23 syllabus, to be put forth in BOS
9. Any other points with the permission of the Chair.

The following members were present:

12. Dr. D. V. A. Rama Sastry, Associate Professor & HoD, Chairman-DAC
13. Dr. S. S. Rao, Professor & PG Coordinator & R&M Group Head, Member
14. Dr. Y.V.Hanumantha Rao, Professor & CFD Group Head, Member
15. Dr. S.N. Padhi, Professor & D & M Group Head, Member
16. Dr. P. Kasi V. Rao, Associate Professor & Deputy HoD, Member
17. Dr. G.Diwakar, Professor, IV Year Coordinator, Member
18. Dr. K. Lokesh, Associate Professor, Professor I/C Exams, Member
19. Mr. G. R. Sanjay Krishna, Associate Professor Professor I/C Counselling, Member
20. Mr. K. M. V. Ravi Teja, Assistant Professor II & III Year Coordinator, Member
21. Mrs. T. Kanthimathi, Assistant Professor & Professor I/C Academics, Member

Minutes:

6. HOD welcomed all the members to the meeting and presented the agenda items before the members.
7. Following is the feedback given by Stake Holders on curriculum
 - Mr.K.Krishna Kumar, Sri lakshmi Gnapathi Engg works(Kumar pumps), suggested to involve students in exploring syllabus by giving topics of syllabus in each subject rather than lecturers explaining the subject. It is resolved to conduct flipped learning classes for students to encourage self learning concepts.



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- Dr.G.Naga Srinivasulu, Professor, NIT Warangal, suggested to include Gas turbine cycles in 21ME2210- Analysis of thermal systems course. And also suggested to rewrite the convection heat transfer topics in 21ME3115 course. It is resolved to propose the suggested changes in the upcoming BOS.
- Dr.Srikanth K, professor, NIT Warangal, Suggested to include "Kinematic Synthesis(four bar chain)" topic in the course 21ME2211)Kinematic & Machines. He also suggested to refer "Mechanical Vibrations by Prof. R.V.Chalam" text book for 21ME3118 Dynamics of Machines course. It is resolved to propose the suggested topics to be included in the course in the upcoming BOS.
- Dr.Suresh Babu, professor in NIT Warangal, suggested to separate 21ME3113 Machine Design course as two separate courses considering the static and dynamic loading conditions, and also suggested to include governors concept in 21ME3118 Dynamics of Machines course. He suggested to give practical exposure to students on the topic covered in this course.

It is resolved to propose the suggested changes in the upcoming BOS.

- Dr. A.Subhananda Rao, DG & Chief controller-DRDO, Hyderabad suggested to have
 - i. more skilling for hands on experience.
 - ii. teaching /learning methods to be oriented towards real time problem solving in industry/society.
 - iii. orientation of course content towards Industry 4.0.
 - iv. General degree without tagging specialization is advisable for student's career point of view.
 - v. For each stream one subject covering all advanced concepts in brief is advisable

It is resolved to propose the suggested changes in the upcoming BOS.

3. Upon discussing with group heads and DAC members, it is resolved to propose the mapping of courses with the informal learning activities like Samyak, Yantrik etc. also the softwares required for the skilling courses to be imparted to Y22 admitted are also proposed.
4. It is resolved to propose the MOOCS courses and value added courses for Y21 and Y22

admitted batch students.

5. It is resolved to approve the courses for Energy & CFD specialization for Y22 admitted batch students
6. Upon discussing the feedback given by course coordinator, it is resolved to change the L-T-P-S of the course 19ME4076 from 2-0-2-0 to 3-0-0-0.



(Dr. D.V.A.Ramasarthy)
Chairman-DAC

Annexure-4

Skill Sets

S.No.	Company Name	Job profile	Skills Required
1	ABB	Trainee, Test Engineer	System design and Smart manufacturing
2	ACC cements	Managment trainee	Quality management, material selection and smart manufacturing.
3	AIRBUS	Graduate Engineer	Design, Manufacturing and automotive concepts
4	Alpha Laval	Design Engineer	Renewable energy, CFD andf Heat Transfer
5	Altair	CAE Technical specialist	Programming skills with core knowledge
6	Amararaja	Graduate Engineer trainee and Mangament trainee	Manufacturing, supervision and Quality
7	APOLLO	Graduate Engineer trainee, shop floor Engineer	Maintenance, conditional monitoring, additive manufacturing and GD&T
8	Ardee Engineering Company	Trainee - Quality/ Design Engineer	Product design, smart manufacturing and renewable energy technologies.
9	ASAHI GLASS	Hybris Developer - SAP -MM and ERP	Heat treatment, Conditional monitoring and quality management.
10	Ashok Leyland	Trainee Engineer	E- Vehicle, Autotronics, IIOT based vehicle and system design.



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11	Axiscades	Design Engineer	Product design and CAD Packages
12	Bajaj Auto Ltd	Graduate Engineer trainee	E-Vehicle, Autotronics and sheet metal.
13	BHARAT BENZ	Design and Graduate Engineer Trainee	System design and Smart manufacturing
14	Bharath forge	Graduate Engineer trainee	Quality management, material selection and smart manufacturing.
15	BOEING	Design Engineer	CAD packages and product development
16	BOSCH	Graduate Engineer trainee	Sheet metal and GD&T
17	Caterpillar	Design Engineer	Modeling, simulation, Autotronics and vehicle intelligence.
18	CEAT	Graduate Engineer trainee, shop floor Engineer	Total quality management, Smart manufacturing and GD&T
19	CYIENT	Design Engineer	CAD packages and product development
20	Dalmia cements	Trainee Quality Engineer	Total quality management, Supply chain management and Smart manufacturing.
21	Dassault systems	Trainee Engineer	Programming skills with core knowledge
22	ESSAR STEEL	Graduate Engineer trainee	SAP-MM, Conditional monitoring, and composites.
23	EXIDE	Graduate Engineer trainee and Mangament trainee	Smart manufacturing, additive manufacturing and GD&T
24	FANUC	Trainee Engineer	Mechatronics and Robotics
25	Force Motors	FNA, SCM Analyst, Graduate Engineer trainee	Heat treatment, smart manufacturing and quality management.
26	Ford	Graduate Engineer Trainee	Design, Manufacturing and automotive concepts
27	Frugal Technologies	Trainee - Quality/ Design Engineer	Porduct development, System design , Quality management.
28	General Electric	Design Engineer	Renewable energy, CFD and Heat Transfer. Smart manufacturing IIOT
29	Geometric Software(HCL Technologies)	Design Engineer	Product design and CAD Packages
30	GODREJ &BOYCE	Graduate Engineer trainee	System design and Smart manufacturing
31	Hero motocorp	Design Engineer	CAD packages and Quality control
32	Hinduja Groups	Graduate Engineer trainee	IIOT, additive manufacturing, Material selection and GD&T
33	HONEYWELL	Design Engineer	Renewable energy, CFD and Heat Transfer
34	Hyundai Mobis	Trainee Engineer	Product developemnt and CAD package
35	Hyundai Motors	Graduate Engineer Trainee	Manufacturing, Automotive concepts
36	ISUZU	Graduate Engineer Trainee	Manufacturing and automotive concepts
37	JAGUAR	Graduate Engineer	Design, Manufacturing and automotive concepts
38	JCB India Ltd	Graduate Engineer Trainee	Quality Control, Process, Production supervisor
39	John Deere	FNA, SCM Analyst, Graduate Engineer trainee	Autotronics, System design CFD AND CAD Package
40	JSW Steels Ltd	Trainee Engineer	Product design, smart manufacturing and renewable energy technologies.
41	Kenna Metals	Trainee Engineer	Additive manufacturing, Material selection
42	KIA Motors	Graduate Engineer Trainee	Manufacturing and automotive concepts
43	Kirloskar Group	Junior technical officer and QA Engineer	Smart manufacring, GD&T and IIOT.
44	L&T	Trainee Engineer	designing and testing mechanical devices
45	LG	Quality Engineer, Trainee Engineer	Renewable energy, CFD and Heat Transfer
46	Mahindra & Mahindra	Design Engineer	E-Vehicle, Autotronics, sheet metal.
47	Mahindra Trucks	Graduate Engineer trainee	Product design, smart manufacturing and Autotronics.



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	and Buses		
48	Maruti Suzuki	Graduate Engineer Trainee	Design, Manufacturing and automotive concepts
49	MEIL	Graduate Engineer trainee and Mangament trainee	designing and testing mechanical devices
50	Mercedes Benz	Design and Graduate Engineer Trainee	Design, Manufacturing and automotive concepts
51	Murugappa group	Graduate Engineer trainee - Core subjects knowledge.	Smart materials, Design and supply chain management
52	Punj Lloyd	Design Engineer	Additive manufacturing, Smart manufacturing (IIOT) and Renewable energy.
53	QUEST GLOBAL through Indeginium	Trainee Engineer	Product design and CAD Packages
54	Reliance Industries	Graduate Engineer trainee, Management trainee	Renewable energy, CFD and Heat Transfer
55	Royal Enfield	Quality Inspector, Trainee Engineer	E-Vehicle design and autotronics
56	Saint Gobin	Hybris Developer - SAP -MM and ERP	Heat treatment, Conditional monitoring and quality management.
57	Sandvik Group	Trainee Engineer	Smart manufacturing (IIOT), ADDITIVE manufacturing
58	SATVEN	Design Engineer	CAD Packages and additive manufacturing
59	SIEMENS	Design Engineer	Product design, smart manufacturing and renewable energy technologies.
60	Stellantis	Graduate Engineer	Autotronics and manufacturing,
61	SUPERSONIC	Graduate Engineer trainee and Mangament trainee	Smart manufacturing, additive manufacturing and GD&T
62	Suzlon Energy Limited	Design Engineer	Renewable energy, CFD and Heat Transfer
63	Tata Motors	Quality inspector and Trainee quality.	E-Vehicle design , autotronics and IIOT
64	TATA POWER	Trainee Engineer	Renewable energy and CFD
65	Tata Steel	Graduate Engineer	CAD packages and product development
66	Tech Mahindra	Design Engineer	CAD packages.
67	TECHNIMONT ICB	Graduate Engineer Trainee	GD&T, Additive manufacturing, Material selection.
68	Technip FMC	Site Engineer	Manufacturing, Oil and Gas
69	Thermax	Design Engineer, Trainee Engineer	Renewable energy and HVAC
70	Thyssen krup	Graduate Engineer trainee	GD&T, Additive manufacturing, Material selection.
71	Triveni turbines	Trainee Engineer	GD&T, Additive manufacturing, Material selection and product design
72	TVS Motors	Production Engineer, quality Engineer	Supply chain management, SAP -MM and Autotronics.
73	Vedanta	Trainee Engineer	Smart manufacturing (IIOT), Renewable energy.
74	Volkswagon	Design Engineer	Product design, sheet metal and Modelling and simulation package.
75	Volvo India	Trainee Engineer	E- Vehicle, Autotronics, IIOT based vehicle and system design.
76	WHIRLPOOL	Quality Engineer, Trainee Engineer	HVAC and Renewable energy
77	Wipro infra	Design Engineer	CAD Packages and additive manufacturing

Annexure-5

Self Learning & E-learning Components

List of Courses identified in Coursera for students & faculty

Specialization / Certificate Courses:

1. Autodesk CAD/CAM/CAE for Mechanical Engineering Specialization
2. Modern Robotics: Mechanics, Planning, and Control Specialization
3. Self-Driving Cars Specialization
4. Autodesk CAD/CAM for Manufacturing Specialization
5. CAD and Digital Manufacturing Specialization
6. Machine Learning Engineering for Production (MLOps) Specialization
7. Renewable Energy Specialization

Core Courses:

1. Introduction to Thermodynamics: Transferring Energy from Here to There
2. Fundamentals of Macroscopic and Microscopic Thermodynamics
3. Introduction to Engineering Mechanics
4. Applications in Engineering Mechanics
5. Materials Science: 10 Things Every Engineer Should Know
6. Mechanics of Materials I: Fundamentals of Stress & Strain and Axial Loading
7. Mechanics of Materials II: Thin-Walled Pressure Vessels and Torsion
8. Mechanics of Materials III: Beam Bending
9. Mechanics of Materials IV: Deflections, Buckling, Combined Loading & Failure Theories
10. Machine Design Part I
11. Fundamentals of Fluid Power
12. Modern Robotics, Course 1: Foundations of Robot Motion

Annexure-6

Software tools

Course Code	Courses	Software Tool mapped
21ME2101	Mechanics of Solids	ANSYS
21ME2104	3D Modeling and Physical Prototyping	Fusion 360/Solidworks
22ME2107	Mathematics - 3 (Numerical Computation for Mechanical Engineers)	MATLAB/Octave
21ME2210	Analysis of Thermal Systems (CFD S/W)	ANSYS-CFD
21ME2211	Kinematics of Machines (with ADAMS S/W)	ADAMS



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21ME2208	Mechanical Engineering Design & Innovation (FEA S/W)	ANSYS/PYTHON/EXCEL
21ME2212	Manufacturing Technology (Linked to Project)	CNC programming
22ME3119	Robotics	Python/MATLAB
21ME3113	Machine Design	ANSYS/SolidWorks
21ME4120	Instrumentation & Control	TinkerCAD/Aurdino
21ME3114	Industry 4.0 & Design of Cyber Physical Systems	TinkerCAD/Aurdino/Python
21ME4052	FINITE ELEMENT METHOD	ANSYS
21ME4053	MODELING ANALYSIS & DESIGN OF ROBOTIC SYSTEMS	Solidworks & ANSYS
21ME4055	ADVANCED STRENGTH OF MATERIALS	ANSYS
21ME4105	COMPUTATIONAL FLUID FLOW AND HEAT TRANSFER-FDM APPROACH	ANSYS-Fluent
21ME4106	CFD FOR COMPRESSIBLE AND INCOMPRESSIBLE FLOWS	ANSYS-Fluent

Annexure-7

Courses mapped with activities

Course Code	Course Title	Activity mapped	Evaluation
21SC1209	Design Tools Workshop – II	Yantrik-Poster	Lab project Review
21ME1002	Engineering Graphics & 2D Modelling	Yantrik-Quiz	ALM
21ME2101	Mechanics of Solids	Samyak-Quiz	ALM
21ME2104	3D Modeling and Physical Prototyping	Samyak-Quiz	ALM
21ME2105	Thermodynamics	Samyak-Quiz	ALM
21ME2007	Materials Technology	Samyak-Cross word	ALM
21UC0011	Gender Sensitization	Samyak-Quiz	ALM
21ME2107	Mathematics - 3 (Numerical Computation for Mechanical Engineers)	Samyak-Programming Contest	Project Review
21ME2106	Fluid Mechanics & Hydraulic Machines	Samyak-Quiz	ALM
PBL	Project Based Learning -1	Samyak	Project Review
21ME2209	Manufacturing Processes	Yantrik-Quiz	ALM
21ME2210	Analysis of Thermal Systems (CFD S/W)	Yantrik-Quiz/Crossword	project/certification
21ME2211	Kinematics of Machines (with ADAMS S/W)	Yantrik-Quiz	ALM
21UC0010	Universal Human Values & Professional Ethics	Yantrik-Quiz	ALM
PBL	Project Based Learning -2	Yantrik-Paper/Poster	Project Review
21ME3118	Dynamics of Machines	Samyak-Quiz/Crossword	ALM
21ME3116	Optimization Techniques	Samyak-Quiz/Crossword	ALM
21ME2208	Mechanical Engineering Design & Innovation (FEA S/W)	Samyak-poster	Project Review
21ME2212	Manufacturing Technology (Linked to Project)	Samyak-Poster	Project Review



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22ME3119	Robotics	Samyak-Programming	ALM
21IE3044	Mid Grad Capstone Project - I	Samyak-Poster/idea presentation	Project Review
21ME3113	Machine Design	Yantrik-Poster/Paper	Capstone project
21ME3115	Heat Transfer	Yantrik-Quiz	ALM
21ME3217	Production Technology	Yantrik-Quiz	ALM
21ME4120	Instrumentation & Control	Yantrik-Quiz	ALM
21IE3043	Term paper	Yantrik-Paper presentation	Project Review
21IE3045	Mid Grad Capstone Project - II	Yantrik-Expo	Project Review
21ME3114	Industry 4.0 & Design of Cyber Physical Systems	Samyak-Expo/Poster	project/certification
20UC0007	Indian Heritage and Culture	Samyak-Quiz	ALM
21IE4048/21IE4051	Project / Internship -1	Samyak-Expo/Presentation	Project Review
21UC0008	Indian Constitution	Yantrik-Quiz	ALM
21UC0009	Ecology & Environment	Yantrik-Quiz	ALM
21IE4049/21IE4052	Project / Internship 2	Yantrik-Expo	Project Review

Annexure-9

Courses Offered under Robotics & Mechatronics Specialization

S.No.	Course Name	L	T	P	S	Cr	CH
1	Robot Motion Planning, dynamics and Control	3	0	0	0	3	4
2	Robot Manipulation and Wheeled Mobile Robots	3	0	0	0	3	4
3	Mechatronics : Fundamentals and Core Concepts	3	0	0	0	3	4
4	Artificial Intelligence for Robotics	3	0	0	0	3	4
5	Human Machine Interface & Brain Machine Interface	3	0	0	0	3	4
6	Computer Vision & Applications	3	0	0	0	3	4
7	Autonomous Vehicles & Automotive Electronics	3	0	0	0	3	4

Annexure-10

Courses Offered under Modern Vehicle Technology Specialization

S.No.	Course Name	L	T	P	S	Cr	CH
1	Power Train Design For Electric Vehicle	3	0	0	0	3	4
2	Solar Energy Technologies	3	0	0	0	3	4
3	Vehicle dynamics	3	0	0	0	3	4
4	Thermal Management Of Electric And Electronic Systems	3	0	0	0	3	4



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5	AI and IOT For Electric Vehicle	3	0	0	0	3	4
6	Communication Protocols & Testing Of Electric Vehicle	3	0	0	0	3	4
7	Autonomous Vehicles & Automotive Electronics	3	0	0	0	3	4

Annexure-11

Minor Degree in Mechanical Engineering offered to all Engineering branches

Sl No	Course Code	Course Title	Type	L	T	P	S	Cr	CH
1		Competitive Coding	Minor					2	
2		Web Technologies	Minor					2	
3	21PH1010	Mechanics	Minor	3	0	0	0	3	4
4	21ME2105	Thermodynamics	Minor	3	0	0	0	3	3
5	21ME2101	Mechanics of Solids	Minor	3	0	2	0	4	5
6	21ME2107	Manufacturing Processes	Minor	2	0	2	0	3	4
7	21ME2210	Analysis of Thermal Systems(Optional)	Minor	2	0	0	4	3	6
8	21ME2208	Mechanical Engineering Design & Innovation(Optional)	Minor	2	0	0	4	3	6
9	21ME3217	Production Technology	Minor	3	0	0	0	3	3
10	21ME3116	Optimization Techniques	Minor	2	0	0	0	2	2

Minor Degree in Robotics & Mechatronics offered to all engineering branches

Sl No	Course Code	Course Title	Type	L	T	P	S	Cr	CH
1		Competitive Coding	Minor					2	
2		Web Technologies	Minor					2	
3	21RM2101	Mechatronics : Fundamentals and Core Concepts	Minor	3	0	0	0	3	3
4	21RM2202	Robot motion and kinematics	Minor	3	0	0	0	3	3
5	21RM3103	Robot Motion Planning, dynamics and Control	Minor	3	0	2	0	4	5
6	21RM3204	Robot Manipulation and Wheeled Mobile Robots	Minor	2	0	2	0	3	4



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7	21RM4105	Robotics: Vision Intelligence and Machine Learning	Minor	2	0	2	0	3	5
8	21RM4206	Industry 4.0 & Design of cyber physical systems	Minor	3	0	0	0	3	3
9	21ME4065	Artificial Intelligence for Robotics	Minor	2	0	2	0	3	4
10	21ME4066	Robotics & Industrial Automation	Minor	3	0	0	0	3	3

Minor Degree in Computational Fluid Dynamics offered to all engineering branches

Sl No	Course Code	Course Title	Type	L	T	P	S	Cr	CH
1		Competitive Coding	Minor					2	
2		Web Technologies	Minor					2	
3	21CF2101	Thermo fluids Engineering	Minor	3	0	2	0	4	5
4	21CF2202	Heat Transfer	Minor	3	0	2	0	4	5
5	21CF3103	Numerical Techniques in Thermal Engineering	Minor	3	0	2	0	4	5
6	21CF3204	Computational Fluid Dynamics(Optional)	Minor	3	0	0	4	4	7
7	21CF4105	Numerical Methods for Multiphase Flows(Optional)	Minor	3	0	2	0	4	5
8	21ME4105	COMPUTATIONAL FLUID FLOW AND HEAT TRANSFER-FDM APPROACH	Minor	2	0	2	0	3	4
9	21ME4106	CFD FOR COMPRESSIBLE AND INCOMPRESSIBLE FLOWS	Minor	2	0	2	0	3	4
10	21ME2107	THERMAL MANAGEMENT OF ELECTRIC AND ELECTRONIC SYSTEMS	Minor	3	0	0	0	3	3



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Annexure-12

Honors Degree

Sl No	Course Code	Course Title	Type	L	T	P	S	Cr	CH
1	21ME4101	Modelling and Simulation of Mechatronic Systems	Honor	3	0	2	0	4	6
2	21ME4102	Robotics - Advanced Concepts and Analysis	Honor	3	0	2	0	4	6
3	21ME4103	Dynamics of Multi-body Systems	Honor	3	1	0	0	4	4
4	21ME4105	Refrigeration & Air Conditioning	Honor	3	1	0	0	4	4
5	21ME4106	Power Generation Technologies	Honor	3	1	0	0	4	4
6	21ME4107	Gas Dynamics	Honor	3	1	0	0	4	4
7	21ME4108	Emerging Smart Material for Mechatronics Applications	Honor	3	1	0	0	4	4

ANNEXURE-13a-COURSE STRUCTURE

1. Program structure (with all Courses)containing following categorization

Course Code	Course Name	Course Category	L	T	P	S	C R	Pre-Requirement	New Course/Revised Course/Retained Course	Changes Proposed by	Focused on Employability/Entrepreneurship/Skill Development	Justification
20UC1 101	Integrated Professional English	HSS	0	0	4	0	2	Nil	Retained	No Changes	Employability	Helps student to improve his/her professional English in job interviews
20UC1 202	English Proficiency	HSS	0	0	4	0	2	Nil	Retained	No Changes	Employability	Helps student to improve his/her proficiency in English for employability
21UC2 103	Essential Skills for Employability	HSS	0	0	4	0	2	Nil	Retained	No Changes	Employability	Enhances the communication skills of student heading for employment



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21UC2 204	Corporate Readiness Skills	HSS	0	0	4	0	2	Nil	Retained	No Changes	Employa bility	Covers the topics related to corporate communication which is helpful in employment
21UC0 010	Universal Human Values & Profession al Ethics	HSS	2	0	0	0	2	Nil	Retained	No Changes	Employa bility	Covers the topics of ethics and values necessary for employability
20UC0 007	Indian Heritage and Culture	HSS	2	0	0	0	0	Nil	Retained	No Changes	Entrepre neurship	Covers topics related to Indian culture necessary for startups in India
21UC0 008	Indian Constituti on	HSS	2	0	0	0	0	Nil	Retained	No Changes	Entrepre neurship	Covers the knowledge of Indian Constitution necessary for starting a business
20UC0 009	Ecology & Environme nt	HSS	2	0	0	0	0	Nil	Retained	No Changes	Entrepre neurship	Covers the topics of nature and environment for necessary for a startup
21UC0 011	Gender Sensitizati on	HSS	2	0	0	0	2	Nil	Retained	No Changes	Entrepre neurship	Covers the topics of on work environment
20MT1 101	Mathemat ics for Computin g	BS	2	2	0	2	4.5	Nil	Retained	No Changes	Skill Develop ment	Covers the topics of maths necessary for skill development
21MT2 102	Mathemat ics for Engineers	BS	2	1	0	0	3	Nil	Retained	No Changes	Skill Develop ment	Covers the topics of maths necessary for skill development
22ME2 209	Numerical Computati	BS	3	0	2	0	4	Nil	70% of Sylabus Revised	DAC members	Skill Develop ment	Covers the topics of MAT



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	on for Mechanica l Engineers											lab necessary for the skill development
21UC1 203	Design Thinking and Innovation	BS	0	0	4	0	2	Nil	Retained	No Changes	Skill Develop ment	Helps students to think in innovative manner for skill development
21PH1 010	Mechanics (Science Elective - 1)	BS	3	1	0	0	4	Nil	Retained	No Changes	Skill Develop ment	Covers the topics of mechanical mechanisms necessary for skill development
21CY10 01	Chemistry (Science Elective - 2)	BS	3	0	2	0	4	Nil	Retained	No Changes	Skill Develop ment	Covers the topics of chemistry required for necessary skill development
21UC3 105	Problem Solving Skills-I	BS	0	0	2	2	1.5	Nil	Retained	No Changes	Skill Develop ment	Covers the topics required for reasoning, aptitude required for placement training
21UC3 206	Problem Solving Skills-II	BS	0	0	2	2	1.5	Nil	Retained	No Changes	Skill Develop ment	Covers the topics required for reasoning, aptitude required for placement training
21SC11 01	Computati onal Thinking for Structured Design	ES	3	0	2	6	5.5	Nil	Retained	No Changes	Skill Develop ment	Covers the topics of Skill development in design
21ME1 103	Design Tools Workshop - I	ES	0	0	4	0	2	Nil	Retained	No Changes	Skill Develop ment	Covers various Software and hardware tools required for a mechanical engineer



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21SC1209	Design Tools Workshop – II	ES	0	0	4	0	2	Nil	Retained	No Changes	Skill Development	Covers various Software and hardware tools required for a mechanical engineer
21SC1202	Design of Data Structures	ES	3	0	2	4	5	21SC1101	Retained	No Changes	Skill Development	Helps to improve the students programming language
21ME1002	Engineering Graphics & 2D Modelling	ES	1	0	4	0	3	Nil	Retained	No Changes	Skill Development	Helps to learn 2D modelling of physical systems using CAD necessary for skill development
21ME2104	3D Modeling and Physical Prototyping (Workshop & 3D Modeling S/W)	ES	0	0	4	0	2	Nil	Retained	No Changes	Skill Development	Helps to learn 3D modelling of physical systems using CAD necessary for skill development
21EE2205	Circuits and Electronics	ES	3	0	2	0	4	Nil	Retained	No Changes	Skill Development	Covers topics on electrical circuits necessary for skill development
21ME2105	Thermodynamics	ES	3	0	0	0	3	Nil	Retained	No Changes	Skill Development	Covers topics on laws of thermodynamics and their application necessary for skill development of mechanical engineer
21PH2007	Materials technology	ES	2	0	0	0	2	Nil	Retained	No Changes	Skill Development	Covers topics on materials required for mechanical



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												engineering
22ME2 106	Fluid Mechanics & Hydraulic machines	PC	3	1	2	0	5	Nil	Retained	No Changes	Skill Develop ment	Covers topics on fluid statics, dynamics for improving skill development of the student
22ME2 210	Analysis of Thermal Systems (with CFD & (Linked to Project))	PC	3	1	0	4	5	21ME2 105	70% syllabus Revised	DAC members & Industry persons	Skill Develop ment	Covers topics on gas turbines, steam turbines and pumps for the skill development
21ME3 115	Heat Transfer	PC	3	0	2	0	4	Nil	Retained	No Changes	Skill Develop ment	Covers the basics concepts of modes of heat transfer and heat exchangers for the skill development
21ME2 101	Mechanics of Solids	PC	3	0	2	0	4	21PH1 010	Retained	No Changes	Skill Develop ment	Covers topics on stress and strain of solids and their application necessary for skill development of mechanical engineer
21ME2 208	Mechanica I Engineerin g Design & Innovation (Analysis S/W)	PC	2	0	0	4	3	21ME2 101	Retained	No Changes	Skill Develop ment	Covers the basic mechanical design consideration for skill development
21ME2 211	Kinematics of Machines (with Adams s/w)	PC	2	0	2	0	3	21PH1 010	Retained	No Changes	Skill Develop ment	Helps to analyse various mechanisms for the skill development



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21ME3 118	Dynamics of Machines	PC	2	0	0	0	2	21PH1 010	Retained	No Changes	Skill Develop ment	Helps to analyse various mechanisms for the skill development
21ME3 113	Machine Design (Linked to Project)	PC	3	1	0	4	5	21ME2 208	Retained	No Changes	Skill Develop ment	Covers the basics concepts of Machine Design for the skill development
21ME2 107	Manufact uring Processes	PC	2	0	2	0	3	Nil	Retained	No Changes	Skill Develop ment	Covers the topics required for manufacturing industry
21ME2 212	Manufact uring Technolog y (Linked to Project)	PC	2	0	2	0	3	Nil	Retained	No Changes	Skill Develop ment	Covers the topics required for manufacturing industry
21ME3 116	Optimizati on Technique s	PC	2	0	0	0	2	Nil	Retained	No Changes	Skill Develop ment	Covers the concepts required for optimization techniques required in production
22ME4 120	Instrumen tation & Control	PC	2	0	2	0	3	Nil	25% Syllabus revised	DAC Members	Skill Develop ment	Covers the concepts on measurement of various instruments
22ME3 119	Robotics	PC	2	0	0	0	2	Nil	100% New Course	DAC members	Skill Develop ment	Covers the basics concepts of Robotics
22ME3 114	Industry 4.0 & Design of Cyber Physical Systems	PC	2	0	0	4	3	Nil	80% Syllabus Revised	Course Coordinat or	Skill Develop ment	Covers the topics related to various new technology and imparts skilling
21ME4 051	THEORY OF ELASTICIT	Enginee ring Design	3	0	0	0	3	21ME2 208	Retained	No Changes	Skill Develop ment	Covers topics on elasticity and plasticity



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	Y AND PLASTICITY	Elective										for skill development
21ME4052	FINITE ELEMENT METHOD		2	0	2	0	3	21PH1010	Retained	No Changes	Skill Development	Covers topics on analysing the dynamics problems
21ME4053	MODELING ANALYSIS & DESIGN OF ROBOTIC SYSTEMS		2	0	2	0	3	NIL	Retained	No Changes	Skill Development	Covers topics on design of robotic systems
21ME4054	CREEP, FATIGUE AND FRACTURE MECHANICS		3	0	0	0	3	21ME2208	Retained	No Changes	Skill Development	Covers topics related to fracture mechanics required for skill development
21ME4055	ADVANCED STRENGTH OF MATERIALS		2	0	2	0	3	21ME2101	Retained	No Changes	Skill Development	Covers topics on advance strength of materials for skill development
21ME4056	MECHANICS OF COMPOSITE MATERIALS		3	0	0	0	3	21ME2208	Retained	No Changes	Skill Development	Covers topics related to composites for skill development
21ME4057	SUSTAINABLE DESIGN & SOCIAL INNOVATION IN ENGINEERING DESIGN		1	0	4	0	3	21ME2208	Retained	No Changes	Skill Development	Helps to understand the societal problems in engineering design and develops necessary skills required
21ME4061	MODERN MANUFACTURING PROCESSES		2	0	2	0	3	21ME2107	Retained	No Changes	Skill Development	Enables to learn modern manufacturing processes for skill development
22ME4062	MACHINE TOOL		2	0	2	0	3	NIL	100% New	BOS Members	Skill Development	Enables advanced



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	MACHINE COMMUNICATION	SMART MANUFACTURING ELECTIVE							Course		ment	learning of machine language
21ME4063	ADVANCED MATERIALS		3	0	0	0	3	NIL	Retained	No Changes	Skill Development	Enables to learn behaviour of advanced materials processes for skill development
21ME4064	FLEXIBLE MANUFACTURING SYSTEMS		2	0	2	0	3	NIL	Retained	No Changes	Skill Development	Enables to learn Flexible manufacturing processes for skill development
21ME4065	ROBOTICS & INDUSTRIAL AUTOMATION		2	0	2	0	3	NIL	Retained	No Changes	Skill Development	Enables to learn about Robotics & Industrial automation for skill development
21ME4066	REVERSE ENGINEERING & RAPID PROTOTYPING		3	0	0	0	3	NIL	100% New Course	BOS Members	Skill Development	Helps to understand reverse engineering and creating prototypes for skill development
21ME4067	SUSTAINABLE DESIGN & SOCIAL INNOVATION IN SMART MANUFACTURING		1	0	4	0	3	NIL	Retained	No Changes	Skill Development	Helps to understand the societal problems in manufacturing and develops necessary skills required
21ME4101	HYDROGEN AND FUEL CELL TECHNOLOGIES		2	0	2	0	3	NIL	Retained	No Changes	Skill Development	Covers topics of green energy using hydrogen fuel cell
21ME4102	SOLAR ENERGY TECHNOLOGY		2	0	2	0	3	NIL		No Changes	Skill Development	Covers topics of green energy using



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	OGIES								Retained			
21ME4 103	ADVANCE D ENERGY STORAGE SYSTEMS	ENERGY & CFD	2	0	2	0	3	NIL	Retained	No Changes	Skill Develop ment	Covers to on energy storage systems like batteries
21ME4 104	ENERGY AUDIT AND MANAGE MENT		3	0	0	0	3	NIL	Retained	No Changes	Entrepre neurship	Covers topics on importance of energy audit and its management
21ME4 105	COMPUTA TIONAL FLUID FLOW AND HEAT TRANSFER -FDM APPROAC H		2	0	2	0	3	NIL	Retained	No Changes	Skill Develop ment	Covers the topics on fluid flow, heat transfer which uses FDM appraoch
21ME4 106	CFD FOR COMPRES SIBLE AND INCOMPR ESSIBLE FLOWS		2	0	2	0	3	NIL	Retained	No Changes	Skill Develop ment	Covers the topics on compressible and incompressible flows
22ME2 107	THERMAL MANAGE MENT OF ELECTRIC AND ELECTRON IC SYSTEMS		3	0	0	0	3	NIL	100% New Course	Academic peers	Skill Develop ment	Covers topics on electric and electronic systems on thermal management
22ME4 071	Robot Motion Planning, dynamics and Control	ROBOTI CS & MECHA TRONIC S	2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Develop ment	Covers topics on dynamics of robots
22ME4 072	Robot Manipula tion and Wheeled Mobile Robots		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Develop ment	Covers topics on manipulation and wheel mobile robots
22ME4 073	Mechatro nics : Fundame ntals and		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Develop ment	Covers topics on mechatronics fundamentals



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	Core Concepts											
22ME4074	Artificial Intelligence for Robotics		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on Artificial Intelligence of robotics
22ME4075	Human Machine Interface & Brain Machine Interface		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on Human Machine Interface & brain Machine interface
22ME4076	Computer Vision & Applications		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on Computer Vision & applications
22ME4077	Autonomous Vehicles & Automotive Electronics		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on Autonomous Vehicles
22ME4081	Power Train Design For Electric Vehicle	MODERN VEHICLE TECHNOLOGY	2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on power train design for electric vehicles
22ME4082	Solar Energy Technologies		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on solar energy technology
22ME4083	Vehicle dynamics		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on dynamics of vehicles
22ME4084	Thermal Management Of Electric And Electronic Systems		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on electric and electronic systems on thermal management
22ME4085	AI and IOT For Electric		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on AI and IOT for Electric



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	Vehicle											Vehicle
22ME4086	Communication Protocols & Testing Of Electric Vehicle		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on Communication protocols
22ME4087	Autonomous Vehicles & Automotive Electronics		2	0	2	0	3	NIL	100% New Course	BOS Members	Skill Development	Covers topics on Autonomous Vehicles
20ME40B4	Robotics	OE	3	0	0	0	3	NIL	Retained	No Changes	Skill Development	Covers topics on basics of Robotics
20ME40B5	Mechatronics	OE	3	0	0	0	3	NIL	Retained	No Changes	Skill Development	Covers topics on basics of Mechatronics
20ME40B6	Operations Research	OE	3	0	0	0	3	NIL	Retained	No Changes	Skill Development	Covers topics on basics operations reserach
20ME40B7	Hybrid Electric vehicles	OE	3	0	0	0	3	NIL	Retained	No Changes	Skill Development	Covers topics on basics of hybrid Vehicles
20ME40B8	Industry 4.0	OE	3	0	0	0	3	NIL	Retained	No Changes	Skill Development	Covers topics on basics of Industry 4.0
20ME40B9	Industrial Automation	OE	3	0	0	0	3	NIL	Retained	No Changes	Skill Development	Covers topics on basics of industry automation
20ME40C1	Logistics & Supply chain management	OE	3	0	0	0	3	NIL	Retained	No Changes	Skill Development	Covers topics on basics Logistics & Supply chain management
20ME40C2	Total Quality Management	OE	2	0	2	0	3	Nil	Retained	No Changes	Skill Development	Covers topics on the Quality management in the industry



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												for skill development
20ME4 OC3	Smart Mobility	OE	2	0	2	0	3	Nil	Retained	No Changes	Skill Development	Covers topics on smart method in the mobility in the skill development
20ME4 OC4	Managerial Economics for Engineers	OE	2	0	2	0	3	Nil	Retained	No Changes	Skill Development	Covers topics on the management concepts required for engineers
OE	Management Elective(OE-4)- Operations management	OE	3	0	0	0	3	Nil	Retained	No Changes	Skill Development	Covers topics on the management
OE	Foreign Language Elective(OE-5)	OE	2	0	0	0	2	Nil	Retained	No Changes	Skill Development	Covers topics on the Foreign language
20IE20 50	Social Internship	Project	0	0	0	8	2	Nil	New Course	BOS members	Skill Development	Enables students to understand the societal problems related to skill development
20IE30 50	Technical Internship	Project	0	0	0	8	2	Nil	Retained	No Changes	Skill Development	Enables students to understand the technical issues in an industry related to skill development
21IE40 42	Industry Internship	PR	0	0	0	4	1	Nil	Retained	No Changes	Skill Development	Enables students to understand the technical issues in an industry related to skill



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												development
21IE20 46	Project Based Learning - 1	PR	0	0	0	6	1. 5	Nil	Retained	No Changes	Skill Develop ment	Enables students to enhance their skills by doing things on their own.
21IE20 47	Project based learning - 2	PR	0	0	0	6	1. 5	Nil	Retained	No Changes	Skill Develop ment	Enables students to enhance their skills by doing things on their own.
20IE31 50	Mid Grad Capstone Project - I	Project	0	0	0	8	2	Nil	Retained	No Changes	Skill Develop ment	Enables students to enhance their skills by doing things on their own.
20IE32 50	Mid Grad Capstone Project - II	Project	0	0	0	8	2	Nil	Retained	No Changes	Skill Develop ment	Enables students to enhance their skills by doing things on their own.
20IE41 50	Capstone Project - I	Project	0	0	0	2 4	6	Nil	Retained	No Changes	Skill Develop ment	Enables students to enhance their skills by doing things on their own.
20IE42 50	Capstone Project - II	Project	0	0	0	2 4	6	Nil	Retained	No Changes	Skill Develop ment	Enables students to enhance their skills by doing things on their own.
20IE40 50	Practice School	Project	0	0	0	2 4	6	Nil	Retained	No Changes	Skill Develop ment	Enables students to understand the various activities conducted in an industry
20IE40 51	Internship	Project	0	0	0	2 4	6		Retained	No Changes	Skill Develop ment	Enables students to understand the various



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								Nil				activities conducted in an industry
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Percentage of Syllabus Revision=1955/99=19.74

Percentage of Courses focusing on Employability= 5*100/99=5.05

Percentage of Courses focusing on Entrepreneurship= 5*100/99=5.05

Percentage of Courses focusing on Skill Development = 87*100/104=89.89

1. Course wise Syllabus revision of approved structure as mentioned in point 1

Course Code	Course Name	Course Category	Existing Syllabus	New Syllabus	Topics Added/Removed/Replaced	Change in Outcome	Justification for the Modification	Revision Percentage
22ME2209	Numerical Computation for Mechanical Engineers	BS	22ME2209	22ME2209	Topics Added: scalar problems, dynamic analysis, statistical analysis with 3-0-2-0 structure	CO-2, 3,4	To cover the important concepts of mathematics	70%
22ME2210	Analysis of Thermal Systems (with CFD & (Linked to Project))	PC	22ME2210	22ME2210	Concepts of IC Engines and Gas turbines, unconventional energy sources included with 3-1-0-4 structure	CO-1,2,3	Heat power engineering course content is merged with this course and L-T-P-S changed	70%
22ME4120	Instrumentation & Control	PC	22ME4120	22ME4120	L-T-P-S changed from 2-0-0-4 to 3-0-2-0, Lab experiments were added	CO-5	To make students to do lab work and learn the usage of different instruments	25%
22ME3119	Robotics	PC	22ME3119	22ME3119	New Course	All Co's	To understand the	100%



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			9				basic concepts of Robotics	
22ME3114	Industry 4.0 & Design of Cyber Physical Systems	PC	22ME3114	22ME3114	Topics included: Sensing & Actuation, Cybersecurity in Industry 4.0, Industrial IoT-Layers, Industrial IoT: Security and Fog Computing	All Co's	To match with the industry requirements the modification in the syllabus is made by adding IOT concepts	90%
22ME4062	MACHINE TO MACHINE COMMUNICATION	PE	-	22ME4062	New course	All Co's	Course is introduced to match with the present industry requirements	100%
21ME4066	REVERSE ENGINEERING & RAPID PROTOTYPING	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME2107	THERMAL MANAGEMENT OF ELECTRIC AND ELECTRONIC SYSTEMS	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4071	Robot Motion Planning, dynamics and Control	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4072	Robot	PE	-	21ME4066	New Course	All Co's	Course is introduced	100%



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	Manipulation and Wheeled Mobile Robots						d to match with the present industry requirements	
22ME4073	Mechatronics : Fundamentals and Core Concepts	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4074	Artificial Intelligence for Robotics	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4075	Human Machine Interface & Brain Machine Interface	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4076	Computer Vision & Applications	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4077	Autonomous Vehicles & Automotive Electronics	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4081	Power Train Design For Electric Vehicle	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the	100%



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							present industry requirements	
22ME4082	Solar Energy Technologies	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4083	Vehicle dynamics	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4085	AI and IOT For Electric Vehicle	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%
22ME4086	Communication Protocols & Testing Of Electric Vehicle	PE	-	21ME4066	New Course	All Co's	Course is introduced to match with the present industry requirements	100%



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Annexure-14

K L E F

Department of Mechanical Engineering

M.Tech – Machine Design

2022-23 admitted batch

First Year (First Semester):

S. No.	Course Code	Course Title	Periods			Contact Hours	Credits
			L	T	P		
1	22ME 5117	Design Methods	4	0	0	4	4
2	22ME 5118	Design with Advanced materials	3	0	0	3	3
3	22ME 5119	Theory of Elasticity and Plasticity	3	1	0	4	4
4	22ME 5120	Modeling & Analysis-1 (CAD)	4	0	2	6	5
5	22ME 5112	Elective-1	3	0	0	3	3
6	22ME 51J1	Elective-2	3	0	0	3	3
7	22IE5149	Seminar	0	0	4	4	2
Total			20	1	6	27	24

First Year (Second Semester):

S. No.	Course Code	Course Title	Periods			Contact Hours	Credits
			L	T	P		
1	22ME 5221	Mechanical Vibrations	3	0	0	3	3
2	22ME 5222	Design for Optimization	3	1	0	4	4
3	22ME 5223	Advanced strength of materials	3	1	0	4	4
4	22ME 5224	Modeling & Analysis-2 (FEM)	4	0	2	6	5
5	22ME 52K3	Elective-3	3	0	0	3	3
6	22ME 52L2	Elective-4	3	0	0	3	3
7	22IE5250	Term Paper	0	0	4	4	2
Total			19	2	6	27	24

Second Year (Third Semester & Fourth Semester)

S.N O.	Course Code	Course Title	Periods			Contact Hours	Credits
			L	T	P		
1.		Major Project	0	0	72	-	36
Total Credits			0	0	72	-	36

ELECTIVE COURSES:

Elective – 1						
1	22ME 51I1	Precision and Quality Engineering	3	0	0	3
2	22ME 51I2	Advanced mechanisms & manipulator kinematics	3	0	0	3
3	22ME 51I3	Concurrent Engineering	3	0	0	3
Elective – 2						
1	22ME 51J1	Design of Pressure Vessels and Plates	3	0	0	3
2	22ME 51J2	Tribological System Design	3	0	0	3
3	22ME 51J3	Product Design and Development	3	0	0	3
Elective – 3						
1	22ME 52K1	Mechanics of Composite Materials	3	0	0	3
2	22ME 52K2	Machine Tool Design	3	0	0	3
3	22ME 52K3	Fracture Mechanics	3	0	0	3
Elective – 4						
1	22ME 52L1	Engineering Noise & Control	3	0	0	3
2	22ME 52L2	Engineering Failure Analysis and prevention	3	0	0	3
3	22ME 52L3	Design for Manufacturing, Assembly and Environment	3	0	0	3



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Annexure-15

KLEF

DEPARTMENT OF MECHANICAL ENGINEERING

M.TECH - THERMAL ENGINEERING

2022-23 admitted batch

First Year (First Semester):

S. No.	Course Code	Course Title	Periods			Contact Hours	Credits
			L	T	P		
1	22ME5109	Numerical Methods in Thermal engineering	3	0	2	5	4
2	22ME5110	Advanced Thermodynamics	3	1	0	4	4
3	22ME5111	Design of Thermal Systems	3	1	0	4	4
4	22ME5112	Advanced Heat and Mass Transfer	3	1	0	4	4
5		Elective – 1	3	0	0	3	3
6		Elective - 2	3	0	0	3	3
7	22IE5149	Seminar	0	0	4	4	2
Total			18	4	4	26	24

First Year (Second Semester):

S. No.	Course Code	Course Title	Periods			Contact Hours	Credits
			L	T	P		
1	22ME5213	Incompressible and Compressible Flows	3	1	0	4	4
2	22ME5214	Computational Fluid Dynamics	3	0	2	5	4
3	22ME5215	Refrigeration and Cryogenics	3	1	0	4	4
4	22ME5216	Measurements in Thermal Engineering	3	1	0	4	4
5		Elective – 3	3	0	0	3	3
6		Elective - 4	3	0	0	3	3
7	22IE5250	Term Paper	0	0	4	4	2
Total			18	3	6	27	24

Second Year (First & Second Semester):

S.No	Course code	Course Title	Periods			Credits
			L	T	P	
1	22IE6050	Dissertation	0	0	72	36



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ELECTIVE COURSES

S.No	Course code	Course Title	Periods			Credits
			L	T	P	
Elective-1						
1	22ME51E1	Heat Exchanger Design	3	0	0	3
2	22ME51E2	Convection and Two-Phase Flow	3	0	0	3
3	22ME51E3	Compact Heat Exchangers	3	0	0	3
Elective-2						
1	22ME51F1	Engine Performance and Emission Control	3	0	0	3
2	22ME51F2	Thermal management of electric and electronic systems	3	0	0	3
3	22ME51F3	Alternative Fuels	3	0	0	3
Elective-3						
1	22ME52G1	Principles of Turbo-machinery	3	0	0	3
2	22ME52G2	Gas Turbine Engineering	3	0	0	3
3	22ME52G3	Turbo-Compressors	3	0	0	3
Elective-4						
1	22ME52H1	Energy Conservation, Management & Audit	3	0	0	3
2	22ME52H2	Renewable Energy Technology	3	0	0	3
3	22ME52H3	Solar Energy and Wind Energy	3	0	0	3

Annexure-16

Changes proposed by Course Coordinators for the courses to be offered in 2022-23 Odd Sem

Annexure-16(a)

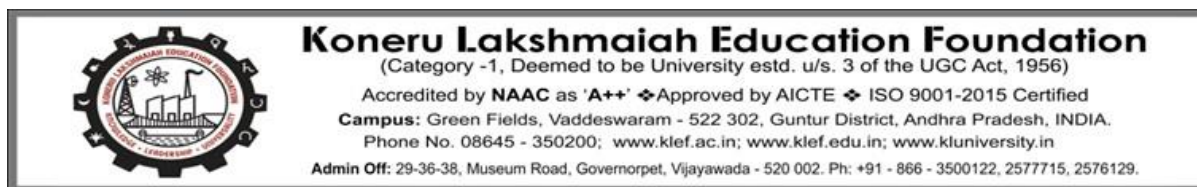
20ME3114 – INDUSTRY 4.0 & DESIGN OF CYBER PHYSICAL SYSTEMS

L-T-P-S : 3-0-0-4

Credits 4

Contact Hours 7

Pre-requisite : NIL



Mapping of Course Outcomes with PO/PSO:

CO#	Course Outcome	PO/PSO	BTL
CO1	Apply basic principles of Industry 4.0: Cyber Physical Systems in solutions that require problem solving	PO1-1, PSO1-1	2
CO2	Implement the concepts of Cybersecurity in Industry 4.0 and develop applications	PO3-2, PSO1-2	3
CO3	Implement the concepts of IoT and develop applications	PO3-2, PSO1-2	3
CO4	Implement the concepts of IIoT and develop applications	PO3-2, PSO1-2	3
CO5	Apply the concepts of Cyber security and Control Systems to develop real time applications	PO3-3, PSO2-3	4

Syllabus

Introduction: Sensing & actuation

Communication-Part I, Part II, Networking-Part I, Part II, Industry 4.0: Globalization, The Fourth Revolution, LEAN Production Systems, Industry 4.0: Cyber Physical Systems and Next Generation Sensors, Collaborative Platform and Product Lifecycle Management

Cybersecurity in Industry 4.0

Basics of Industrial IoT: Industrial Processes-Part I, Part II, Industrial Sensing & Actuation, IIoT-Introduction, Industrial IoT: Business Model and Reference Architecture: IIoT-Business Models-Part I, Part II, IIoT Reference Architecture-Part I, Part II. Industrial IoT- Layers: IIoT Sensing-Part I, Part II, IIoT Processing-Part I, Part II, IIoT Communication-Part I.

Industrial IoT- Layers

IIoT Communication, IIoT Networking-Part I, Part II, Part III. Industrial IoT: Big Data Analytics and Software Defined Networks: IIoT Analytics - Introduction, Machine Learning and Data Science Part I, Part II, Industrial IoT: Big Data Analytics and Software Defined Networks: SDN in IIoT-Part I, Part II, Data Center Networks, Industrial IoT

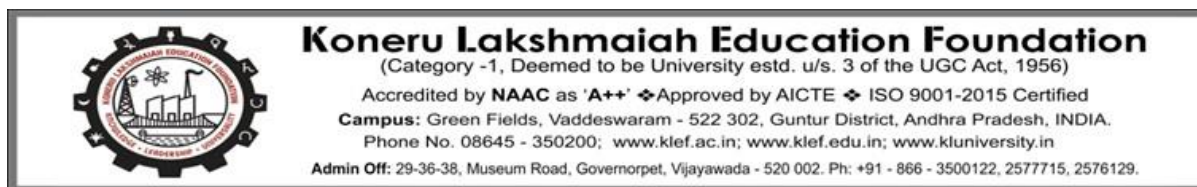
Industrial IoT: Security and Fog Computing

Fog Computing in IIoT, Security in IIoT-Part I, Part II, Industrial IoT- Application Domains, Industrial IoT- Application Domains: Healthcare, Power Plants, Inventory Management & Quality Control, Plant Safety and Security (Including AR and VR safety applications), Facility Management. Industrial IoT- Application Domains: Oil, chemical and pharmaceutical industry, Applications of UAVs in Industries, Real case studies

Text books:

1. Artificial Intelligence a Modern Approach by Peter Norvig, Rusell
2. Introduction to Industrial Internet of Things and Industry 4.0 by Anandarup Mukherjee, Chandana Roy and Sudip Misra.
3. Industry 4.0 The Industrial Internet of Things by Alasdair Gilchrist.

Reference Books:



1. Internet of Things – A hands-on approach, Arshdeep Bahga and Vijay Madisetti

2. Architecting for the Cloud-AWS Best Practices.

Web References / MOOCs:

1. Introduction to Industry 4.0 and Industrial Internet of Things by Prof. Sudip Misra IIT Kharagpur.

<https://nptel.ac.in/courses/106105195>

List of Experiments:

- 1) Write a python program to solve Water Jug Problem in Artificial Intelligence?
- 2) Write a python program to implement a simple Chatbot?
- 3) Introduction to Arduino IDE and Installation of Arduino IDE
- 4) Connecting and making LED to blink
- 5) Connecting and making LED on using pushbutton
- 6) Controlling LED by using LDR sensor
- 7) NodeMCU V3 For Fast IoT Application Development
- 8) Connecting and controlling Servo motor using Arduino Micro controller.
- 9) Connecting and controlling DC motor using Arduino Micro controller.
- 10) Interface Smoke Sensor to activate with a warning RED
- 11) Connecting and controlling LED using Infrared sensor and Arduino Micro controller

Certifications Required:

It is mandatory for every student to get certification on “Robotic Process Automation”. Based on the grade obtained in this certification will be considered for In-Semester Summative Evaluation. It is essential for the student to complete “Introduction to Industry 4.0 and Industrial Internet of Things” from NPTEL platform by the end of the semester and get certification. A separate examination will be conducted within the university for those who are not able to complete the NPTEL certification

Annexure-16(b)

K L E F **DEPARTMENT OF MECHANICAL ENGINEERING** **PROPOSED REVISIONS for DAC & BOS APPROVAL**

Program: B.Tech
2023

Year/semester of study: IV / Odd

Academic year: 2022-

Course Title: Automobile Engine System and Performance
19ME4076

Course Code:



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Item	Existing	Proposed Modification	Justification for the proposed modifications
L-T-P-S	2-0-2-0	3-0-0-0	As Physical Engines laboratory and licensed software's on automobile testing is not available, it was recommended to offer as a theory course

Item	CO No	Existing	Proposed Modification	Justification for the proposed modifications	PO/PSO mapping* (ex:PO1-1 or PO1-2 or PO1-3)
Course Outcome	CO1	Apply the knowledge of basic engine technology along with principle. Summaries of Engine Cycles	Apply the concept of basic engine technology on performance of Engine Cycles	As existing course outcome is not clear, it was modified	PO1-2
	CO2	Apply the concept performance aspect of mixture preparation and ignition system for SI and CI Engines and Combustion in Engines	Apply the concept of mixture preparation and combustion in SI and CI Engines	As existing course outcome is not clear, it was modified	PO1-1
	CO3	Pollutant Formation, Emission control methods and Emission norms	Identify the concepts of Pollutant Formation, Emission control methods and Emission norms	Verb is missing in the beginning of outcome statement. Added the verb	PO1-1
	CO4	Engine Testing, Performance analysis and Emerging Engine Technologies	Analyze Engine Performance and testing	Verb is missing in the beginning of outcome statement. Added the verb	PO2-3

Annexure-16(c)

K L E F

DEPARTMENT OF MECHANICAL ENGINEERING PROPOSED REVISIONS for DAC & BOS APPROVAL

Program:B.Tech
2022-2023

Year/semester of study:IV year/I Sem

Academic year:

Course Title: Petroleum Production Engineering-II

Course Code: 19ME4113



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Item	CO No	Existing	Proposed Modification	Justification for the proposed modifications	PO/PSO mapping* (ex:PO1-1 or PO1-2 or PO1-3)
Course Outcome	CO1	Able to understand production operation surface facilities	Apply various techniques in gathering and collecting oil and gas from the well	CO statements are not as per the norms	PO1-1, BTL-3
	CO2	Able to apply oil and gas processing and treatment methods	Apply various methods for the separation of oil and gas and for the treatment of various fluids	CO statements are not as per the norms	PO1-1, BTL-3
	CO3	Able to apply oil and gas storage and metering operations	Apply the different methods for the storage of petroleum products	CO statements are not as per the norms	PO1-2, BTL-3
	CO4	Able to apply production operations and optimization	Analyze the production system for optimizing production cost	CO statements are not as per the norms	PO2-1, BTL-3
Reference Books		No Change	NA	NA	NA

Existing Syllabus	Proposed Syllabus	Reasons for Changes in Existing Syllabus
No change in Syllabus	No change	NA

Annexure-16(d)

K L E F

DEPARTMENT OF MECHANICAL ENGINEERING PROPOSED REVISIONS for DAC & BOS APPROVAL

Program: B Tech
2022-2023

Year/semester of study: 3rd year/odd

Academic year:

Course Title: Machine Design

Course Code: 20ME3113

Item	CO No	Existing	Proposed Modification	Justification for the proposed	PO/PSO mapping*
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				modifications	(ex:PO1-1 or PO1-2 or PO1-3)
Course Outcome	CO1	Design of shafts and couplings	Design of transmission shafts, Couplings and Springs	Sentence modification required as per syllabus	PO3-2, PSO2-2
	CO2	Design of fasteners	Design of appropriate fastening system	Sentence modification required as per syllabus	PO3-2, PSO2-2
	CO3	Selection of appropriate bearings and drives	Design and selection of appropriate Bearings, Belt Drives and Chain Drives	Sentence modification required as per syllabus	PO3-2, PSO2-2
	CO4	Design of gears	Design and analysis of different Gears and Brakes.	Sentence modification required as per syllabus	PO3-2, PSO2-2
	CO5	Design various mechanical systems	Design and synthesis of functional prototype using various mechanical components	Sentence modification required as per syllabus	PO4-3, PSO2-2
Reference Books					

Existing Syllabus	Proposed Syllabus	Reasons for Changes in Existing Syllabus
NA	No Change	NA

K L E F

DEPARTMENT OF MECHANICAL ENGINEERING PROPOSED REVISIONS for DAC & BOS APPROVAL

Program: B Tech
2022-2023

Year/semester of study: 3rd year/odd

Academic year:

Course Title: Machine Design

Course Code: 20ME3113

Item	CO No	Existing	Proposed Modification	Justification for the proposed modifications	PO/PSO mapping* (ex:PO1-1 or PO1-2 or PO1-3)
Course Outcome	CO1	Design of shafts and couplings	Design of transmission shafts, Couplings and	Sentence modification required as per	PO3-2, PSO2-2



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			Springs	syllabus	
	CO2	Design of fasteners	Design of appropriate fastening system	Sentence modification required as per syllabus	PO3-2, PSO2-2
	CO3	Selection of appropriate bearings and drives	Design and selection of appropriate Bearings, Belt Drives and Chain Drives	Sentence modification required as per syllabus	PO3-2, PSO2-2
	CO4	Design of gears	Design and analysis of different Gears and Brakes.	Sentence modification required as per syllabus	PO3-2, PSO2-2
	CO5	Design various mechanical systems	Design and synthesis of functional prototype using various mechanical components	Sentence modification required as per syllabus	PO4-3, PSO2-2
Reference Books					

Existing Syllabus	Proposed Syllabus	Reasons for Changes in Existing Syllabus

Annexure-17

Approved Global Certifications

ENGINEERING DESIGN	SMART MANUFACTURING	AUTOMOBILE ENGINEERING	AUTOTRONICS	PRODUCT DESIGN	ENERGY & CFD
SOLIDWORKS	SOLIDWORKS	SOLIDWORKS	SOLIDWORKS	SOLIDWORKS	SOLIDWORKS
AUTOCAD	AUTOCAD	Autodesk Inventor	AUTOCAD	Autodesk Suite	Autodesk CFD
FUSION 360	FUSION 360	FUSION 360	FUSION 360	FUSION 360	OpenFOAM
CATIA	DEFORM-3D	BIW CATIA	CATIA	CATIA	SimScale
HYPERMESH	SIMUFACT	Blender	ABB RoboStudio	Blender	Simcenter
ANSYS	ANSYS	Reno	Python	Onshape	ANSYS-FLUENT



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NASTRAN	SIX SIGMA	Alias	ADAMS		Altair CFD
PATRAN		Creo Parametric			Flowsquare
ADAMS					Paraview

Dr.D.V.A.RamaSastry

Chairman-BOS