



JK LAKSHMIPAT UNIVERSITY, JAIPUR

Institute of Engineering and Technology

Minutes of 11th meeting of Board of Studies (BoS), held on

Saturday: 30.05.2020 at 11:00 a.m via Zoom (Online)

Present:

1. Dr. R. L. Raina, Vice-Chancellor, JKLU
2. Dr. Sanjay Goel, Director-IET, JKLU, Chairman (BoS-IET)
3. Mr. Naveen Kumar Sharma, Director, Udaipur Cement Works Ltd, Udaipur.
4. Dr. B. R. Natarajan, Professor and Head, Chemical Engineering, Bansthali Vidyapeeth
5. Prof SD Joshi, Professor, EE, IIT Delhi.
6. Mr. Sanjeev Jindal, Regional Executive Director, Airport Authority of India, Northeast Region, Guwahati
7. Dr. Sanjay Vashishtha, MD, First Green Consulting Pvt. Ltd., Gurgaon
8. Mr. R. Narasimhan, VP (Projects), SB Energy, New Delhi
9. Dr. Ajit Pratap Singh, Professor, CE, BITS Pilani
10. Arun Singal, Founder & CEO, IR4tech, Delhi
11. Dr. Jinesh K Jain, Associate Professor, ME, MNIT Jaipur
12. Mr. Amit Trivedi, COO, My Recharge Skill Development and Director, Synergy, Jaipur
13. Mr. Yashpal, Assistant Manager, DEKRA India Pvt. Ltd., New Delhi
14. Dr. S.P Gupta, Professor-Maths, IET, JKLU
15. Dr. Gustavo Sanchez, Professor-EEE, IET, JKLU
16. Dr. D. K. Sharma, Professor- CE, IET, JKLU
17. Dr. Amit Sinhal, Professor-CSE, IET, JKLU
18. Dr. Sonal Jain, Professor-CSE, IET, JKLU
19. Dr. Devika Kataria, Associate Professor-EEE, IET, JKLU

20. Dr. Ravi Shankar Prasad, Associate Professor-ME, IET, JKLU
21. Dr. S. Taruna, Associate Professor-CSE, IET, JKLU
22. Dr. Pushpendra Singh, Associate Professor-EEE, IET, JKLU
23. Dr. Vipin Kumar Jain, Associate Professor-Physics, IET, JKLU
24. Dr. Umesh Gupta, Associate Professor-Maths, IET, JKLU
25. Dr. Kedar Sharma, Associate Professor-CE, IET, JKLU
26. Dr. Tanmay Kumar Deb, Assistant Professor- CE, IET, JKLU
27. Dr. Jitendra Kumar Singh, Assistant Professor-CHE, IET, JKLU
28. Dr. Mohammad Zubair, Assistant Professor-ME, IET, JKLU
29. Dr. Jaya Gupta, Assistant Professor-Maths, IET, JKLU
30. Dr. Shahnawaz Khan, Assistant Professor-Chemistry, IET, JKLU
31. Dr. Richa Mishra, Assistant Director-CCCT, JKLU

1. Welcome

Hon'ble Vice-Chancellor, Dr. Roshan Lal Raina extended a heartfelt welcome to all Members of the BoS of Institute of Engineering and Technology. He also briefly introduced the following external members participating in the BoS Meeting, first time:

- Mr. Naveen Kumar Sharma
- Mr. Sanjeev Jindal

Leave of absence was granted to the following members:

1. Prof. Rahul Banerjee, Director, LNMIIT, Jaipur
2. Mr. R.S. Mani, Deputy Director-General, NIC, Delhi

2. Opening Remarks

In his opening remarks, Hon'ble Vice-Chancellor briefed the Board about the progress on the University's Activity-Mix for the period 23rd September, 2019 - 30th May, 2020, as per Annexure-I.

3. Confirmation of Minutes

Minutes of the 10th BoS meeting held on 22 September 2019 were confirmed.

4. Action Taken Report based on the Minutes of 10th Board of Studies meeting held on 22 September 2019 was noted and proposals for new minors were reviewed as follows:

- (a) The proposed minor, "**Computer-Aided Design and Manufacturing**", by the mechanical engineering department for students of other branches was accepted.

- (b) The minor proposed by the EEE department for students of other branches, Automation Technology, was accepted in principle with the changed name of “**Cyber Physical Systems**” and the required course on “Electrical Vehicle Technology” was recommended to be changed to “Autonomous Electrical Vehicles”.

5. Existing & New Programmes: Discussions and Recommendations

Chairman (BoS-IET), Dr. Sanjay Goel after a presentation on the existing and proposed new programs opened up the discussions on the following issues, the deliberations on some of them further progressed in subgroup meetings.

- a) He reported that to respond to the lockdown because of Covid-19, the Institute continued online teaching during Mar-May’ 2020. As per the need, the laboratory work was appropriately modified and progressed using virtual laboratories, simulations, programming, and CAD work. The attendance in the online classes was generally more than 80% and students as well as faculty, through their feedback, expressed satisfaction with online teaching-learning process. Since a 6th semester, 2 credit course, “Automation Project” required hardware implementation, the **BoS agreed with the recommendation to shift it to the 7th semester for the batch 2017-21.**
- b) He shared recently developed **Program Education Objectives (PEOs), Program Outcomes (POs), and Program Specific Outcomes (PSOs)** for all Programs of IET and their implementation through appropriate Learning Outcomes (LOs), content, pedagogy, and evaluation scheme in all courses.
- c) He briefly explained the ongoing comprehensive **curriculum mapping** exercise mapping POs and PSOs to course specific LOs and evaluation schemes, especially for the batch admitted in 2019 onwards. It was recommended to create **problem banks representing expectations** from students wrt the POs/PSOs/LOs.
- d) He shared the **list of electives** planned for the next semester for a discussion.
- e) Basic program structure and syllabus outline of proposed electives were also discussed in separate department-wise subgroup meetings of the BoS members. The subgroups were formed around the department of CE, ME+CHE+Chemistry, EEE, and CSE+Maths and external experts joined these subgroups related to their specific area of expertise.
 - i. Three mathematics open electives (OEs) (Numerical Methods, Operations Research, and Advanced Statistics) offered by the Department of Science and Liberal Arts were discussed. The essence of the discussion was that these OEs must be oriented towards the applications in the areas of Machine Learning & Data Analytics. It was clarified that these OEs do have content that have applications in the stated fields.

- ii. Open Electives like Game Programming and Game design should be developed.
 - iii. In BTech (Civil Engineering), the 2019-23 batch 5th-semester course “Design of RCC and Steel Structures” is recommended to be split in “Design of RC Structures” as 5th-semester core course and “Design of Steel Structures” to be later offered as an elective course.
 - iv. In BTech (Civil Engineering), the proposal to modify the syllabus of the 6th-semester core course on “Transportation Engineering” by including an introduction to Railway Engineering and Airport Engineering, 20% each, was accepted and recommended to be effective from the next academic year.
 - v. In Civil Engineering, the proposed concentrations on “Structural Engineering”, “Infrastructure Engineering”, “Environmental Engineering”, and “Construction Management” were accepted.
 - vi. Machine to Machine Communication topic is recommended to be part of coursework in the concentration “Robotics and Automation” by Mechanical Engineering.
 - vii. The syllabus of flexi-core -Digital System Design (V semester, EEE) was discussed and approved by experts.
- f) Recommendation to start an **M.Sc (Data Analytics)** with an option to exit with a PG Diploma (Data Analytics) after one year, was discussed in light of the curriculum structure (Annexure-II), and agreed. The BoS appreciated the idea of opening the opportunities in this area for students with 3-year graduation degrees. Topics on Natural Language Processing were recommended to be included as part of the core courses on Machine Learning.
- g) Proposal to start a modular **M.Tech (Artificial Intelligence and Machine Learning)** with an option to exit with a Certificate after 3 months, an Advanced Certificate after 6 months, a PG Diploma after one year, as per the curriculum structure (Annexure III) was agreed. The BoS appreciated the idea of modularity and felt that even many industry professionals should find it interesting and some companies may even sponsor their staff for it. Experts to be invited from Industry for delivering some lectures for the courses, to make it more industry-relevant.
- h) It was recommended that the Hybrid Model (a balanced combination of Online teaching and On-campus teaching) can be explored for different programs, especially at the PG level. It was also recommended that during the full-semester internship, students should be given the facility to earn credits by taking up electives to be taught in online/curated MOOC mode.
- i) More exposure should be given to IET students in the fields of behavioral science, arts, economics, etc.

- j) JKLU should explore the possibility to start a **certificate Course in Digital Marketing** of a duration of 3 or 6 months to be taught as an Interdisciplinary course by faculty from all the three Institutes.
- k) Chairman, BoS shared that IET has launched a **Certificate in Pre-engineering Program** for newly registered students in B. Tech programme. The programme is being run by 16 faculty members. 8-week long online programme includes the courses: *Fun with Mathematics, Fun with Physics, New Age Engineering, and Website Development* followed by one week of on campus activity.

6. Vote of Thanks

Chairman, BoS thanked all the members for taking time out of their busy schedules to attend the meeting and for all their valuable inputs and suggestions, enriching the deliberations.



Date: June 5, 2020

(Dr. Sanjay Goel)
Director: IET, JKLU
Chairman: BoS-IET, JKLU

Annexure I

Campus Activities during 23rd September, 2019 to 30th May, 2020

Annexure II

2 year MSc in Data Analytics

With an exit option with

PG Diploma in Data Analytics after 1 year

Computing systems are conventionally used to automate the processes to collect, store, integrate, analyse, transfer, and transform large volumes of data – quantitative or qualitative, single or multi-dimensional, corpus or stream, invariable or dynamic, static or kinetic, centralised or distributed, structured or unstructured, measured or simulated, multimedia or multimodal, exact or fuzzy, confined or pervasive. Thanks to several new technologies, digital data is exploding like never before. It is doubling in less than 2 years and by the year 2020, the accumulated digital data will grow to around 44 trillion gigabytes. The new generation of artificial intelligence and data management techniques, platforms, and tools are facilitating intelligent automation by leveraging this data to transform not only the workflows and workspaces but also the personal and social spaces as well as the leisure. Data analysts are in demand across a diverse range of fields, e.g., business, industry, government, healthcare, finance, insurance, banking, transportation, city planning, security, media, consulting, research, sports, entertainment, policy planning, politics, NGO, etc.

This program will provide the foundation necessary for students to intelligently harness data to inform processes and decisions. The program creatively combines computational mathematics and statistics, big data, machine learning, RPA, HCI, etc., into an integrated curriculum that prepares students for careers in data analytics, big data analysis, data science, business analytics, management, public policy, etc.

Programme Specific Outcomes

1. Identify, extract, and pull together available and pertinent heterogeneous data and use appropriate computational principles, platforms, and techniques to discover new relations and deliver insights into research problems or organizational processes and support decision-making.
2. Conceive, design, implement and manage data analytics systems, services, and processes by using principles of computational mathematics, computational statistics, computer science, data management, machine learning, software engineering, and relevant state of the art platforms, components, and tools.
3. Serve in the areas of data analytics or business analytics in business, consultancy, industry, government, healthcare, education, etc.

Eligibility: 60% marks in graduation (Computer Science, Information Technology, Engineering, Maths, Statistics, Physics, Physical Sciences, Economics, Commerce, or equivalent) and also in 12th class with 60% marks in Mathematics.

<p style="text-align: center;">Curriculum Structure Post Graduate Diploma in Data Analytics (1 year) M.Sc. in Data Analytics (2 Years)</p>													
Term (Trimester/ Semester)	Courses											Credits :Hours	
I (Trimester)	Computational Statistics		Computational Thinking and Computer Programming		Mathematics for Data Analytics		Database Systems		Robotic Process Automation		CCCT-1		12:27
	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2		2	
II (Trimester)	Fundamentals of Machine Learning		Big Data Systems –I		Advanced Mathematics for Data Analytics		Data and Knowledge Representation		Data Visualization and Cognitive Dashboard		CCCT-2		12:27
	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2		2	
III (Trimester)	Applied Machine Learning		Big Data Systems –II		Optimization for Data Analytics		Elective		Minor Project/ Elective		CCCT-3		12:27
	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2		2	
IV (Trimester)	Capstone Project / Internship (6- 8 weeks)											10	
V (Semester)	Elective-II		Elective-III		Dissertation/Internship-II/Entrepreneurship Project								16
	3-0-0	3	3-0-0	3	10								
VI (Semester)	Dissertation/Internship-III/Entrepreneurship Project											16	
Total Credits: M.Sc. - 78; PG Diploma - 46													

- The program offers the option to exit with PG Diploma in Data Analytics after one year, i.e., Term IV.
- A student can opt for up-to 5 MOOC courses, not more than 2 in any single term, with prior permission.
- 1 Credit = a minimum of 35-36 hours of expected workload for each student over the full term.

Annexure III

2 Years M.Tech. in Artificial Intelligence and Machine Learning (Exit options of 3 Months, 6 Months and 1 Year)

Program Specific Outcome

The graduates of M.Tech. (Artificial Intelligence and Machine Learning) at JKLU will be able to:

PSO1: Conceive, design, implement and manage intelligent information systems, services, and processes by using principles of computer science, data management, artificial intelligence, machine learning, computational statistics, software engineering, and state of the art platforms, components, and tools.

PSO2: Serve in the areas of artificial intelligence, machine learning, data analytics, data science, or in business, consultancy, industry, government, healthcare, education, research, etc.

Eligibility: BTech/BE/MCA/M.Sc. (Mathematics, Statistics, Computer Science) with 60%.

Curriculum Structure												
Certificate in Artificial Intelligence and Machine Learning (3 Months) Advanced Certificate in Artificial Intelligence and Machine Learning (6 Months) Post Graduate Diploma in Artificial Intelligence and Machine Learning (12 Months) M.Tech in Artificial Intelligence and Machine Learning (2 Years)												
Term (Trimester/ Semester)	Courses											Credit s: Hours
I (Trimester)	Computational Statistics		Supervised Machine Learning		Natural Language Processing		Artificial Intelligence		Robotic Process Automation		CCCT-1	12:27
	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	2	
II (Trimester)	Advanced Mathematics for Data Analytics		Unsupervised Machine Learning		Big Data Systems -I		Knowledge Representation		Data Visualization and Cognitive Dashboard		CCCT-2	12:27
	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	2	
III (Trimester)	Optimization for Data Analytics		Elective 1		Big Data Systems -II		Computer Vision		Minor Project/ Elective		CCCT-3	12:27
	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	3-0-2	2	2	
IV (Trimester)	Capstone Project / Internship (6- 8 weeks)											10
V (Semester)	Elective-II		Elective-III		Dissertation/Internship-II/Entrepreneurship Project						16:25	
	3-0-0	3	3-0-0	3	10							
VI (Semester)	Dissertation/Internship-III/Entrepreneurship Project										16	
	16											
	Total Credits: MTech - 78; PG Diploma - 46; Advanced Certificate - 24; Certificate - 12											

- The program offers the options to exit with
 - Certificate in Artificial Intelligence and Machine Learning (3-Months, i.e. Term-I)
 - Advanced Certificate in Artificial Intelligence and Machine Learning (6-Months, i.e. Term-II)
 - Post Graduate Diploma in Artificial Intelligence and Machine Learning (12 Months, i.e. Term-IV)
- A student can opt for up-to 5 MOOC courses, not more than 2 in any single term, with prior permission.
- 1 Credit = a minimum of 35-36 hours of expected workload for each student over the full term.