

STRUCTURE OF BOARD OF STUDIES (2021-22) IN DEPARTMENT OF AERONAUTICAL ENGINEERING, Dr. AIT, BENGALURU – 560 056

Name	Designation	Organization	Email ID	Mobile #
VTU NOMINEE(01)				
Dr. John Baruch	Professor, AED	MVJ College of Engineering	johnbaruch@mrvjce.edu.in	9443427309
EXTERNAL SUBJECT EXPERTS (04)				
S. N. Omkar	Chief Research Scientist, AE	Indian Institute of Science	omkar@iisc.ac.in	9341028478
Dr. S.K. Maharana	Professor & Head, AED	Acharya Institute of Technology	skmahal23@gmail.com	9900094967
Dr. P.K Dash	Professor & Head, AED	NMIT, Bangalore	pranodkumar.dash@nmit.ac	6362621490
Dr. Hareesha NG	Professor & HCD AED	Dayanand Sagar College of Engineering	hod-aero@dayanandasagar.edu	988077 4363
INDUSTRY REPRESENTATIVES (03)				
Dr. Dharmendra Narayan	Scientist G	Aeronautical Development Agency	dnarayan@jetmail.ada.gov.in	9343330770
Dr. Soumendu Jana	Principal Scientist	National Aerospace Laboratory	soumendu.jana@gmail.com	9448021060
Dr. Sanjay Barad	Scientist G	GTRF, Bangalore	baradsg@gtre.drdo.in	9449816291
ALUMNI WITH P G DEGREE(01)				
Dr. Srikanth H V	Associate Professor	NMIT, Bangalore	srikanth.hv@nmit.ac.in	8147719698
INTERNAL – Under Graduate MANUFACTURING & MATERIALS (02)				
Dr. B. Gangadhara Shetty	Professor	Mech. Engg. Dept., Dr. AIT	gshetty2005@yahoo.co.in	9448018147
Dr. S. Sathish	Associate Professor	Mech. Engg. Dept., Dr. AIT	sathishait99@gmail.com	9448908552
INTERNAL - Under Graduate DESIGN (02)				
Dr. K. M. Purushothama	Professor	Mech. Engg. Dept., Dr. AIT	kmpait2000@gmail.com	9844188851
Dr. H. A. Shivappa	Assistant Professor	Mech. Engg. Dept., Dr. AIT	shivappa78@gmail.com	9900144201
INTERNAL – Under Graduate THERMAL & AERODYNAMICS (02)				
Mr. S. K. Jagadeesh	Associate Professor	Mech. Engg. Dept., Dr. AIT	skj2002in@gmail.com	9448294197
Mr. K. C. Byre Gowda	Assistant Professor	Mech. Engg. Dept., Dr. AIT	bgowdal13@gmail.com	9342566619
MEMBER – Mentee Institution (01)				
Mr. Nitesh Kumar Dixit	Assistant Professor	Hod, Mech. Engg. Dept., IET,	niteshdixit11@gmail.com	8770974427
INVITEE (03)				
Dr. V Arun Kumar	Research Advisor	Mech. Engg. Dept., Dr. AIT	arun51149@gmail.com	9945305628
Dr. Mahadevaswamy M	Assistant Professor	Mech. Engg. Dept., Dr. AIT	mmsai2006@yahoo.com	9035593670
Dr. Rajesh M	Assistant Professor	Mech. Engg. Dept., Dr. AIT	mrajaroi@gmail.com	9538181440
CHAIRMAN (01)				
Dr. T. N. Raju	Assoc. Professor & Head	Mech. Engg. Dept., Dr. AIT	raju.tn.me@drait.edu.in	9620397639

Minutes of Meeting
BOS - Aeronautical Engineering
Date - 28-08-2021

Agenda - Discussion on Scheme and Syllabus of Aeronautical Engineering

- At the outset, the HOD (AE) welcomed all the BOS members who had come to attend the meeting. Members started to discuss about the scheme and syllabus of the aeronautical engineering. Dr. Arunkumar suggested that smart materials be included in the content. Dr. Hareesha recommended to include the smart materials in the material science course. It can be included in a higher semester or as an elective, according to Dr. Sarath.
- Following that, the conversation turned to the subject of Mechanics of Materials (18AE32). The panel members specified that the suggested textbooks must cover the entire syllabus of the subject. And also, the panel members suggested to include the topic of cylinder and shells in the syllabus.
- Next the discussion moved to the subject of Elements of Aeronautics (18AE33). HOD (AE) proposed to rename a subject "Introduction to Aeronautics," whereas other panel members suggested "Basic of aeronautics."
- Mr. Narayan recommended that the aircraft design and testing be included in the syllabus. HOD (AE) suggested that it will be included in the higher semester and he advised that the book from the tata mcgraw hill publisher has to be included as well.
- Later on, the conversation switched to the subject of Mechanics of Fluids (18AE34). The panel members suggested to change the name of the subject as Fluid mechanics. However, HOD [AE] recommended to retained the same title.
- Following that, the discussion turned to the subject of Measurement and Metrology (18AE35). HOD [AE] suggested to compare and cross check the topics covered in the subject with mechanical engineering syllabus.
- Mr. Srikanth suggested to include the manufacturing as a subject in the syllabus. Since the Manufacturing process course is not a part syllabus, the HOD (AE) recommended to incorporate the some portion of manufacturing process in the Aircraft Materials.
- While coming to Measurement and Metrology lab (18AEL36), Dr. Arunkumar suggested that the data acquisition system can be incorporated to the curriculum in future. So that student can acquire the knowledge of data acquisition system.
- Next the topic of the discussions shifted to the 4th semester syllabus. In the Aerodynamics-I (18AE41) subject, the panel members recommend that the author Clancy LJ's book should be placed in the text book rather than the reference book. Mr. Srikanth pointed out that some of the topics covered in the Turbomachine (18AE45) subject are also presented in the Aircraft propulsion (18AE42) course. A panel member stated that the CAAD (18AEL46) course syllabus is extensive and that there would not be enough time to complete the syllabus.

The meeting was concluded with a vote of thanks to the attendees


HOD
Department of Aeronautical Engineering
Dr. Ambedkar Institute of Technology
Bengaluru-560 056

Dr Ambedkar Institute of Technology

Department of Aeronautical Engineering

Board of Studies - External

Minutes of Meeting

DATE: 23/7/2022

Attendees:

Dr T N Raju	Chairman
Dr John Baruch	VTU Nominee
Dr S K Maharana	External Subject Expert
Dr P K Dash	External Subject Expert
Dr Dharmendra Narayan	Industry Representative
Dr Srikanth H V	Alumni Member
Dr V Arun Kumar	Invitee Member
Dr B Gangadhar Shetty	Internal Member
Dr S Sathish	Internal Member
Mr Manjunath H S	Internal Member
Mr Mihir Kulkarni	Internal Member
Mr Vigneswaran C M	Internal Member

Agenda: To discuss and finalize the NEP scheme and syllabus for the upcoming Academic Year 2022-23

Following points were discussed:

- The HOD, Dr Raju, shared a welcome note to all the members of the board and officially began the meeting.
- The presentation of the syllabus that was prepared by the internal committee was then presented one by one in front of the external members by Mr Vigneswaran. Mr Vigneswaran started the presentation with discussion on the scheme of subjects for the new NEP syllabus.
- Dr Narayan questioned the definition of credits and hours to which the internal team explained that 1 credit is equal to 1 hour of teaching or some times 2 hours of lab.
- Dr Arun Kumar questioned about less credits for one elective in 7th semester. We cannot give 3 credits to one elective and 2 credits to another. To this, Dr Maharana also added saying that since the electives have prerequisite subjects from previous semesters, no of credits on electives cannot be compromised. Core courses however can be altered. Instead, we can maybe reduce credits in one of the core subjects. An idea of 2.5 credits + 2.5 credits is suggested by Dr Arun Kumar but Dr Dash informed that this is not allowed as per AICTE rules. It was decided that this information must be passed to the dean's office and the dean office will make the necessary changes.
- A name change was suggested to energy conversion lab. Dr Srikanth suggested that we can instead call it thermal engineering lab and add the necessary equipment with energy conversion lab setup. However, it was pointed out by Dr Maharana that such kind of changes will need approval from the management as investment for the new lab equipment involved will have to be approved.
- Dr Dash suggested that we add the concepts of Heat Transfer Lab somehow into the syllabus. He also suggested if we can add it into Physics lab if possible. Dr Raju decided that alterations to Thermodynamics syllabus to include heat transfer will be discussed upon and changes will be made.

- The inclusion of Ansys into the course in 3rd semester was questioned. Dr Srikanth said Ansys simulations will take a lot of time. Dr Maharana went further and said that teaching Ansys or CFD or any CAE software without teaching discretisation is very difficult. If we are teaching the software, we will have to teach discretisation first.
- Dr Narayan suggested that CFD is a very important tool and is used in every part of aircraft development. Therefore, including CFD and topics of CFD in multiple semesters was suggested. Dr Maharana again reiterated that teaching the CFD without discretisation is not advised. Finally, it was decided to exchange Flight Dynamics and CFD. FD moves from 6th Semester to 5th Semester and CFD moves to 6th Semester.
- Dr Dash suggested that the syllabus is slightly biased towards Aircraft Structures and related topics and therefore other streams were under-represented. Dr Arun Kumar said we must add those subjects to electives to bring the balance back. He also suggested that Aircraft Maintenance Repair and Overhaul must be given as an elective.
- While discussing electives, it was also suggested that many subjects that are in elective are important and therefore needed to be moved to core subjects. Subjects to be moved to core as suggested by Dr Maharana were Gas Turbine Technology and Avionics. A suggestion was made to move Vibrations to elective but it was later turned down by all the panel members.
- Dr Raju suggested that instead Material Science and Manufacturing can be offered as an open elective from the mechanical department. This will free up space for one more subject. Between Avionics and Gas Turbine Technology, Avionics was decided to be moved to core subject. GTT can be an elective. Dr Maharana suggested that it is a good idea to setup an Avionics Lab also as 70% of an aircraft pertains to Avionics and thus the topic becomes very important. He also suggested that it takes about 10 Lakhs to set up the lab and the Department of Electronics and Communications can help.
- Dr Dash spoke about Advanced Propulsion and Supersonic Combustion is an essential part of propulsion. He also suggested that propulsion topics must be introduced in Thermodynamics subject. Therefore, a lot of fusion of propulsion topics into thermodynamics syllabus must be made. Dr Dash also suggested to use Hill and Peterson textbook for this syllabus.
- Dr Maharana suggested that the wind tunnel that is being procured by the college must be utilised for more than just lab. A lot of research projects can be done and therefore it will make good use of the wind tunnel.
- Dr Maharana also mentioned that faculty for AMRO is very difficult to find. So it is something that has to be kept in mind.
- The subject title for Aircraft Systems and Avionics was changed to "Avionics, Control, and Instrumentation".
- Dr Maharana suggested that management subjects may be accommodated for if possible. Suggested subjects are System Engineering, Airline Management, Airport Management and Operations, Aviation Management, where budgeting, Gantt charts, etc can be taught. Dr Dash also proposed to add Accidental Safety Management.
- While discussing the syllabus one by one, Dr Bharuch suggested to add Creep and Fatigue topics in Mechanics of Materials.
- Dr Maharana suggested that Boundary Layer Theory maybe difficult to teach at 3rd semester in Fluid Mechanics. Also, to introduce Navier-Stokes equation in this subject.
- Dr Dash also added that in Thermodynamics, some amount of syllabus needs to be altered in 4th and 5th chapters and introduce propulsion topics. Dr Raju indicated that the changes will be submitted to review again.
- Dr Dash indicated that in Structures Lab, Pressure Vessels must be added. He also added that Shell Theory should be added to the theory syllabus.

- There weren't many changes in the 2018 scheme and syllabus as it was already reviewed in the previous year's BOS. The one suggestion given here was to change the subject title of Composite Materials to "Composite Materials and Structures".

(PP) 

HOD

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