



DAYANANDA SAGAR UNIVERSITY
Department of Aerospace Engineering,
School of Engineering

II BOS Meeting Dated 14th Feb 2019

S.No	Name of BOS Member/Faculty	Signature
1	Dr. A.N.N. Murthy	
2	Dr Puttamadappa C	
3	Prof. Sivakumar	
4	Dr. Ranganayakulu	
5	Mr. Deepak	
6	Mr. Rajaguru	
7	Dr. M.S. Rajagopal	
8	Dr. Vinod Kumar Agrawal	
9	Dr. Suryanarayana	
10	Dr. B.V.N. Ramakumar	
11		
12		
13		
14		

Agenda

1. Review of I Semester & II Semester existing Scheme (Common to all branches of Engineering)
2. Review of Scheme & Syllabus for III & IV Semester
3. Review of Overall Scheme for V, VI, VII & VIII Semesters including Labs
4. Elective Subjects for Higher Semesters

Minutes of the 2nd Meeting of the Board of Studies, AE-Dept.
SoE, DSU, Bangalore 560078

Date: 14 Feb 2019

Venue: Board Room, DSU

Present:

Dr. A N N Murthy, Vice Chancellor, DSU
Dr. V K Agrawal, Director R & D, DSU
Dr. A Srinivas, Dean, School of Engineering, DSU
Dr. M.S. Rajagopal, Chairman, ME, DSU
Dr. C Ranganayakulu, Outstanding Scientist, ADA, Bangalore
Dr. D. Sivakumar, Associate Professor, AE Dept., IISc
Mr. Deepak, Dassault Systems, Bangalore
Dr. B V N Ramakumar, Professor & Chairman, AE, DSU
Dr. G K Suryanarayana, Professor, AE, DSU

Minutes

Agenda No. 1 Finalization of Scheme for 2018 Batch

- Dr Murthy suggested that in order to increase the time available for projects (especially for those doing projects outside DSU), the number of courses in 8th Semester could be reduced from 2 to 1. This could be compensated in the 6th Semester where Internship would be compulsory (either in Innovation Labs or in external firms). In such a case, the students can be in the Campus for 4 hours on Saturdays and work on their projects from Monday to Fridays. The internships could include SMEs, NTTF, GTTC, ISRO, NAL, etc.
- Mr Deepak informed that Dassault supports 25-30 Internees (from all over India) and suggested to consider MSMEs and Start-ups as possible locations for carrying out internships, as well as to increase the number of credits allotted for internship projects and consider increase of time available for projects.
- Dr Agrawal suggested that DSU could engage with Industries which could provide student-scholarship during internships in their workplaces.

Agenda No. 2 Finalization of Syllabus for III and IV Sem. students of AE-Dept.

- Dr Agrawal suggested that the syllabus for Mathematics should include topics like linear algebra, numerical mathematics, optimization, etc. and topics in electrical and electronics in 5th Semester.
- Dr Ramakumar proposed that lab courses in 3rd semester related to Fluid Mechanics and Materials testing would be swapped with courses in the Mechanical Engineering Dept. and NDT Lab would be introduced in Material testing lab.

- Dr Murthy suggested that the course title “Mechanisms and Machine Design” could be changed to “Design of Mechanisms”, with inclusion of kinematics in the syllabus. Accordingly, the descriptions under Module 2 and 3 could be suitably elaborated and the course outcomes suitably highlighted. The descriptions under Module 4 and 5 also may be re-visited.
- Dr Agrawal suggested that Reliability Theory as a part of System Engineering could be introduced. Dr Agrawal suggested that topics like rockets and missiles, launch vehicles, mechanical systems (e.g., landing gear), manufacturability and design for manufacture could be introduced in the verticals.
- Mr Deepak informed that together with Dr C Balaji, Dassault had designed a course with inputs for 1- to 3-weeks and the same would be introduced by Dassault in DSU.
- Dr Ranganayakulu suggested the inclusion of topics on Simulation and Multi-Disciplinary Optimization, Numerical Simulation & CFD, Analytics and Big Data, PLM and Virtual Reality.
- Dr Murthy proposed that together with Dassault, DSU could set up “Complete Experience” PLM programme.

Agenda No. 3 Proposed Scheme for 2019 batch

- Dr Ramakumar proposed that the scheme for 2019 could be introduced for the 2018 batch, starting from the 3rd semester onwards. Dr Ramakumar proposed change of course title from Space Mechanics to Orbital Mechanics. Both were approved by the Members. He also mooted a discussion on whether options for cross-vertical course in electives could be allowed for students. The members opined that if the pre-requisites for a particular course are not covered in the previous syllabus, such a choice should not be permitted.
- It was recommended that to have clear idea on topics which need to be covered under Software Engineering. Re naming can be considered for the course if required.
- Separate electives can be introduced to cover Flight Software, Manufacturing Techniques including RP and tooling.
- Dr Murthy suggested a re-look at the electives and discussion on whether Mechatronics could also be included. In any case, the syllabus needs to be tuned to match with the pre-requisites for choosing electives in the verticals.
- Committee felt that credits for mini project can be increased from one to two so that it will have sufficient weightage.
- The members welcomed the concept of Major and Minor courses, as it enhances the job-market. However, they strongly felt that courses in Aerospace Engineering should NOT be offered as Minor course to students of other disciplines.

The Meeting ended with thanks to the Chair.



DAYANANDA SAGAR UNIVERSITY
DEPARTMENT OF AEROSPACE ENGINEERING

Minutes of BoS Meeting

The meeting is held on 14/09/2019 constituted by Dr.Bala Murugan (External BoS), Dr. BVN Ramkumar (Chairman), Dr.Prashantha Kumar (In charge) and other department faculties.

The following suggestions are made/ recommended to conduct the composite lab experiments:-

1. Incorporation of Hand layup 2D and 3D molds and composite development to the previous experiments.
2. Design and Development of molds by available materials.
3. Demonstration and Display of various fibers available for the manufacturing of composite materials.
4. Recommendation for the safety and pre-cautions while operating to the instruments.
5. Technical and operation clarity of the instruments.
6. Up gradation of the lab to the industries standards with advanced equipments.
7. Recommended to hire one skilled lab technician to demonstrate and operate the lab experiments.

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Dept of Aerospace Engineering
School of Engineering
Dayananda Sagar University
Kudlu Gate, Bengaluru

Dr. BVN Ramkumar

Chairman

BOS MEETING.

ON

COMPOSITES SYLLABUS.

+ OTHER LABS

DATE: 14/09/19.

VENUE: BOARD ROOM,
DSU

MEMBERS

1. Dr. Bala Murugan.

2. Dr. BVN Ramakumar.

3. Dr. Surya Narayana G.K.

4. Dr. Prashantha Kumar. B.S.
H.G.

5. Prof. SRinath R.

6. Prof. Karthik.

7. Dr. Saravana Bawan


8. Mes. Sudha Deepthi.

9. Mr. Ravi Kumar.

10. Mr. Rajaguru

11. Dr. Shankapal

12. Dr. M-S. Rajagopal


Ravakumar


Suryanarayana G.K.


Prashantha Kumar

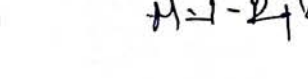

SRinath R.


Karthik


Saravana Bawan


Mes. Sudha Deepthi


Mr. Ravi Kumar


Mr. Rajaguru


Dr. Shankapal


Dr. M-S. Rajagopal

M-S. Rajagopal.

Ravakumar

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Dept of Aerospace Engineering
School of Engineering
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DEPARTMENT OF AEROSPACE ENGINEERING
SCHOOL OF ENGINEERING
DAYANANDA SAGAR UNIVERSITY

2nd March 2020.

Minutes of Meeting - BOS Meeting Held on 28th Feb 2020

Agenda:

1. Scheme proposed for 2018-2022 batch
2. Detailed discussion on syllabus for 5th&6th Semesters (2018-2022 batch)
3. Scheme proposed for 2019-2023 batch
4. Modifications requested for 3rd & 4th Sem syllabus (2019-2023 batch)
5. Discussion on Open Electives offered from Aerospace Engineering
6. Discussion on minor degree
7. Updates on Lab development/visit if possible
8. Any other miscellaneous

Meeting Attendees:

- 1 Prof. Shivakumar, BOS Member, IISc
- 2 Cmde CD Balaji, BOS Member, Aerospace COE
- 3 Dr. Balamurugan, BOS Member, NAL
- 4 Dr. M.S. Rajagopal, BOS Member, DSU
- 5 Dr. Vinod Kumar Agrawal, Director-R&D, DSU
- 6 Dr. Suryanarayana, Professor, Aerospace Engg., DSU
- 7 Dr. B.V.N. Ramakumar, Professor & Chairman, Aerospace Engg., DSU
- 8 Mr. KartikTandel, Asst. Professor, Aerospace Engg., DSU
- 9 Mr. SripadKulkarni, Lab Foreman, Aerospace Engg., DSU

Rama Kumar

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Subject wise suggestions given in the meeting:

Semester	Subject	Suggestions	Remarks
V	Product design 1	In module 5 Add Design check and analysis.	
V	Wind Tunnel testing	Change the subject to Design of wind tunnel models (Force, pressure and spin models studies.) Combine low speed and high speed tunnel model and include wind tunnel model design.	
V	Aircraft Performance and Design	Suggestion is make separate subjects for Aircraft Performance and Aircraft Design. Include topics like Drones, MAVs etc., in Aircraft Design	
V	Aerodynamics II	Correction in module 1 as to include flow through convergent/divergent nozzles, exclude topics of passage and mass momentum energy equation in module 1. Module 4: title change steady state compressible flow and add turbulence model concepts.	
V	Management and Economics of Engineers	Change Title to Principles of management and also add balance sheet concepts.	
VI	Control theory	Syllabus must include Servo motors, DC & AC motors encoders, Stepped motors, LVDT and potentiometers.	
V & VI	Elective suggestions	1. Model based system Engineering 2. Flight testing and instrumentation. 3. Manufacturing technology for aerospace components/systems. 4. Additive manufacturing (Metal additive manufacturing)	

Rana Kund

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VI	Aircraft stability and control	Syllabus must include Autopilot and simulator	
VI	Aircraft systems	Syllabus must include Power by wire technology, local hydraulics, fuel systems ECS systems, Wheels & brakes, steering systems and secondary power systems and accessory pads, design of pump, reservoir, accumulator, pipe sizing.	
V/VI	Aircraft Maintenance, Repair and Overhaul (MRO)	Syllabus in module 2 should include MIL Standards.	
V/VI	Composite materials	Syllabus must include carbon carbon composites, failure theories, advanced composites only for aircraft, disposal of composite materials. Identification of flaw repair and disposal.	
VI	Introduction to space technology	A).Separate module for Testing facilities for any launch systems. B).Basics of Chemical rocket propulsion C).Advanced propulsion techniques like ion thrusters etc. D).Case studies of Indian/commercial space mission. Suggestions	Prof. Sivakumar will go through detailed syllabus and suggest modifications if any
VI	Orbital Mechanics	Introduce space model testing. In module 1 . Sequence of topics need to update	

Text book suggestions:

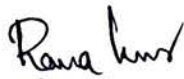
Elements of rocket propulsion systems by G P Sutton.

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Book by DP MISHRA for propulsion system.

Other Decisions and Suggestions:

1. It is accepted to offer Introduction to Aerospace Engg and Introduction to Space Technology as open electives for other branches. Try to accommodate students who opted these subjects as open electives along with regular students.
2. Aerospace Engineering will not offer Minors for other branches at least for next 2-3 years
3. Students of Aerospace Engineering can take Minors from other branches
4. Introduction of Engg Mechanics in the 3rd Sem is accepted for 2019-23 Batch
5. Can core credits be reduced to 3 for all subjects?
6. Avoid decimal credits (1.5) for the labs. Change it to 1 or 2 credits


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DAYANANDA SAGAR UNIVERSITY
Department of Aerospace Engineering,
School of Engineering

BOS Meeting Dated 28th Feb 2020

S.No	Name of BOS Member/Faculty	Signature
1	Dr. A.N.N. Murthy	-
2	Dr Puttamadappa C	-
3	Dr. Srinivas	-
4	Prof. Shivakumar	
5	Comde CD Balaji	
6	Dr. Balamurugan	
7	Dr. Ranganayakulu	-
8	Mr. Deepak	-
9	Mr. Rajaguru	-
10	Dr. M.S. Rajagopal	
11	Dr. Vinod Kumar Agrawal	
12	Dr. Suryanarayana	
13	Dr. B.V.N. Ramakumar	
14	Mr. Kartik Tandel	
15	Mr. Sripad Kulkarni	

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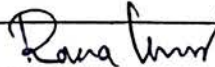
SCHOOL OF ENGINEERING

Dept. of Aerospace Engineering

BOS meeting – Action taken

18 – July - 2020

Sl. No	Name of the course	Comments/ Feedbacks made by BOS members	Action taken	Remarks
1.	Introduction to Aerospace Engineering	<ol style="list-style-type: none"> Title typo error Title of module 3 to be changed 	<ol style="list-style-type: none"> Changed / Rectified Title changed as suggested 	
2.	Thermodynamics	<ol style="list-style-type: none"> Topics of pure substances can be retained Few topics on heat transfer can be eliminated in order to retain pure substances Separate course on heat transfer can be proposed 	<ol style="list-style-type: none"> Retained as suggested Basics of heat transfer are retained to provide the basic knowledge to students. Few other topics of thermodynamics are planned for self-study in order to balance the additional load To be proposed as a sixth semester elective 	
3.	Fluid Mechanics	<ol style="list-style-type: none"> Topics related to submerged bodies can be eliminated Turbulence related topics to be retained Module related to turbulence can be planned for more lecture hours 	<ol style="list-style-type: none"> Submerged bodies topics in module 1 are eliminated Topics relating Turbulent boundary layer and RANS model are retained 	


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			3. Number of lecture hours are altered according to the contents	
4.	Composites lab	Have the students been exposed to Composites already?	III sem students do have a course on aerospace materials which also includes the concepts of composite materials and its manufacturing procedures	
5.	Flight Physics Lab	Prerequisite for Flight Physics Lab	IV semester students undergo a course on aerodynamics I which serves as a prerequisite for flight physics lab	
6.	General comments	<ol style="list-style-type: none"> 1. Course codes are missing 2. Elective subjects to be included 3. No of lecture hours and credits to be balanced 	<ol style="list-style-type: none"> 1. Codes for III semester subjects (new scheme) and Electives are yet to be allotted 2. Program Electives are included in the syllabus 3. Corrective measures taken on no. of lecture hours and credits 	

Rana Kumar

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Approval for Credit and Scheme changes for 2019 Batch

Sivakumar Deivandren <dsukumar@iisc.ac.in>

Tue, Jul 14, 2020 at 9:30 PM

To: DSU AERO AE <chairman-ae@dsu.edu.in>, "drkrc2006@gmail.com" <drkrc2006@gmail.com>, Balamurugan G <gbala@nal.res.in>, "ranganayakulu@jetmail.ada.gov.in" <ranganayakulu@jetmail.ada.gov.in>, NG Deepak <deepak.ng@3ds.com>, C D Balaji <cdbalaji@gmail.com>, Ramesh PS <psr@dynamics.net>
Cc: "Dr.A.Srinivas Dayananda Sagar University" <dean-engg@dsu.edu.in>, "Dr. KNB Murthy" <vicechancellor@dsu.edu.in>, Registrar DSU <registrar@dsu.edu.in>

Dear Prof. Ramakumar,

I am not seeing any major/critical issues with the changes proposed from your side. Make sure the reduction in credit load is within UGC & AICTE norms. On the syllabus part, the changes proposed under Fluid Mechanics are OK. On the subject Thermodynamics, a complete removal of Pure Substances is not that good. You can retain some topics of Pure Substances and, to balance this, you may remove some portions from other modules. For instance, you can reduce the topics covered under the module of Introduction to Heat Transfer (the subject of heat transfer is very important, and it should be given as a separate course). Since the subject title is Thermodynamics, some elimination in the topics of heat transfer may be OK. Otherwise I am OK with the points mentioned from your side.

With regards,

Sivakumar

From: DSU AERO AE <chairman-ae@dsu.edu.in>

Sent: Thursday, July 9, 2020 5:01 PM

To: drkrc2006@gmail.com <drkrc2006@gmail.com>; Balamurugan G <gbala@nal.res.in>; ranganayakulu@jetmail.ada.gov.in <ranganayakulu@jetmail.ada.gov.in>; NG Deepak <deepak.ng@3ds.com>; C D Balaji <cdbalaji@gmail.com>; Ramesh PS <psr@dynamics.net>; Sivakumar Deivandren <dsukumar@iisc.ac.in>

Cc: Dr.A.Srinivas Dayananda Sagar University <dean-engg@dsu.edu.in>; Dr. KNB Murthy <vicechancellor@dsu.edu.in>; Registrar DSU <registrar@dsu.edu.in>

Subject: Approval for Credit and Scheme changes for 2019 Batch

Email from external domain: Be cautious in clicking links or in replying. --TINA, DIGITS

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Mobile: +91-9448091238
Email : chairman-ae@dsu.edu.in

Website : www.dsu.edu.in

On Fri, Jul 10, 2020 at 5:09 PM C D Balaji <cdbalaji@gmail.com> wrote:
Dear Prof. Ramkumar,

Thank you for your email. We are doing fine and trust the same from you also.

I was going through the documents. In order to have a holistic understanding can you please send the following:

- a) Topics in Programme Electives
- b) Topics in Open Electives
- c) Syllabus from 5th to 8th semesters (Only 3rd and 4th sem syllabus is available in the documents sent)

Warm Regards
Balaji

On Thu, Jul 9, 2020 at 5:01 PM DSU AERO AE <chairman-ae@dsu.edu.in> wrote:
Respected BOS Members,

Good wishes of the Day.

Hope you are safe and doing well. It gives me immense pleasure in communicating that we successfully completed all the activities of this semester. We adopted new norms of online classes and online exams during this pandemic situation. We are about to start our next semester activities from 3rd August 2020. We wished to have a meeting with all BOS members before kick starting our next semester. But we are not in position to meet in person now.

Based on UGC & AICTE guidelines and our earlier BOS minutes, we are proposing the following changes for our UG course (2019-23 Intake Batch and Succeeding Batches). Request for your valuable feedback and approvals for the same.

1. We want to limit the total number of credits to 160. Attached document shows the credit distribution.
2. All the 4 credit courses are reduced to 3 credit courses (This is also in line with our earlier BOS Minutes) except for some subjects in the First Year and 3rd Sem Mathematics.
3. In order to bring the credit weightage from 4 to 3, we removed tutorial hours from the scheme. We will definitely solve numericals in the class and encourage students to work on assignments. Some easy portions will be given for self study/online classes.
4. In the attached 3rd Semester syllabus (Fluid Mechanics and Thermodynamics), we want to remove some part of the syllabus which is shown in Red.

Your input before 14th July is highly appreciated.

Thanks in advance for your support

Thanks & Regards,

Prof. B.V.N. Ramakumar
Chairman, Department of Aerospace Engineering,
Dayananda Sagar University,
Hosur Main Road, Kudlu Gate
Bengaluru- 560 068.

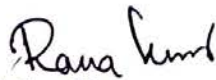
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CD Balaji

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CD Balaji


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Kudlu Gate, Bengaluru



Approval for Credit and Scheme changes for 2019 Batch

Dr Balamurugan Gopalsamy <gbala@nal.res.in>

Fri, Jul 17, 2020 at 12:02 AM

To: dskumar@iisc.ac.in

Cc: chairman-ae@dsu.edu.in, drkrc2006@gmail.com, ranganayakulu@jetmail.ada.gov.in, deepak ng <deepak.ng@3ds.com>, cdbalaji@gmail.com, psr@dynamics.net, dean-engg@dsu.edu.in, vicechancellor@dsu.edu.in, registrar@dsu.edu.in

Dear Prof Ram Kumar,

Greetings!

The total number of credits is limited to 160. If the reduction in credit load is within UGC & AICTE norms, it is agreeable. I do not find any issues regarding credit distribution and course contents.

In Thermodynamics, you may retain some concepts under PURE SUBSTANCE TOPIC, which includes P-T and P-V & T-S and H-S diagrams.

I am agreeing for the rest proposed by you.

Regards,

डॉ। जी। बालमुरुगन / Dr.G.Balamurugan

वरिष्ठ प्रधान वैज्ञानिक / Senior Principal Scientist

समूह प्रमुख - यांत्रिक प्रणाली डिज़ाइन समूह

Group Head – Mechanical System Design Group

संरचनात्मक प्रौद्योगिकी प्रभाग (एस् टी टी डि)

Structural Technologies Division(STTD)

वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्

Council of Scientific & Industrial Research

राष्ट्रीय वांतरिक्ष प्रयोगशालाएँ

National Aerospace Laboratories(NAL)

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Ph:+91-80 25086309

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From: dskumar@iisc.ac.in

To: chairman-ae@dsu.edu.in, drkrc2006@gmail.com, "Dr Balamurugan Gopalsamy" <gbala@nal.res.in>, ranganayakulu@jetmail.ada.gov.in, "deepak ng" <deepak.ng@3ds.com>, cdbalaji@gmail.com, psr@dynamics.net

Cc: dean-engg@dsu.edu.in, vicechancellor@dsu.edu.in, registrar@dsu.edu.in

Sent: Tuesday, July 14, 2020 9:30:46 PM

Subject: Re: Approval for Credit and Scheme changes for 2019 Batch

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Approval for Credit and Scheme changes for 2019 Batch

C D Balaji <cdbalaji@gmail.com>
To: DSU AERO AE <chairman-ae@dsu.edu.in>
Cc: C D Balaji <chairman@aerocoe.in>

Sun, Jul 12, 2020 at 4:35 PM

Dear Prof. Ramakumar,

Thank you for the clarification. You can go ahead with the changes suggested by you

Warm Regards
Balaji

On Sun, Jul 12, 2020 at 4:03 PM DSU AERO AE <chairman-ae@dsu.edu.in> wrote:
Dear Sir,

Sorry for the confusion. Details sent on 11th July are the final ones. Major change is correction in CIA and SEE marks(CIA is 40 and SEE is 60) and there are some movements of subjects.

Syllabus for Avionics is not finalized. Electrical systems can be included in this subject.

Thanks & Regards,

Prof. B.V.N. Ramakumar
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Bengaluru- 560 068.

Mobile: +91-9448091238
Email : chairman-ae@dsu.edu.in

Website : www.dsu.edu.in

On Sat, Jul 11, 2020 at 4:40 PM C D Balaji <cdbalaji@gmail.com> wrote:
Dear Prof. Ramakumar,

1. I was going through the document that you sent today. When I compare with the Scheme table that you had sent in earlier on 09 Jul 2020 for 5th Sem, there is a difference as shown below:

5th Sem Scheme sent on 09 Jul 2020:

SL	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					SCHEME OF EVALUATION	
				L	T	P	S/P	C	CIA	END EXAM
1		Aerodynamics-II	CR	03		--	--	3	50	50
2		Navigation and Guidance	CR	03		--	--	3	50	50
3		Flight Mechanics	CR	03		--	--	3	50	50
4		Vibrations and Structural Dynamics	CR	03	--	--	--	3	50	50
5		Program Elective - 1	CR	03	--	--	--	3	50	50
6		Open Elective - 1	CR	03	--	--	--	3	50	50
7		Aerospace Propulsion Lab	CR	--	--	02	--	1	50	50
8		Flight Physics Lab	CR	--	--	02	--	1	50	50
9		Mini Project - III	CR	--	--	--	02	1	50	50
GRAND TOTAL				18	00	04	02	21	450	450

Scheme as sent on 11 Jul 2020:

SL	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING						SCHEME OF EVALUATION	
				L	T	P	S/P	C	No. of hour/Week	CIA	END EXAM
1	I6AS301	Aerodynamics-II	CR	03	01	--	--	04	04	40	60
2	I6AS302	Introduction to Space Technology	CR	04	--	--	--	04	04	40	60
3	I6AS303	Aircraft Performance	CR	03	01	--	--	04	04	40	60

4	16AS304	Principles of Management and Economics for Engineers	CR	03	--	--	--	03	03	40	60
5	16AS3XX	Program Elective – I	CR	03	--	--	--	03	03	40	60
6	16IE3XX	Open Elective – I	CR	03	--	--	--	03	03	40	60
7	16AS371	Aerospace Propulsion Lab	CR	--	--	01	--	1.5	03	40	60
8	16AS372	Flight Physics Lab	CR	--	--	01	--	1.5	03	40	60
9	16AS381	Mini Project – III	CR	--	--	--	01	02	02	40	60
TOTAL				18	03	02	01	26	29	360	540

As can be seen from above, the subject titles are different. Which will be the current one?

2. Similarly on the 6th Sem scheme:

Scheme sent on 09 Jul:

SL	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING					SCHEME OF EVALUATION	
				L	T	P	S/P	C	CIA	END EXAM
1		Introduction to Space Technology	CR	03		--	--	03	50	50
2		Aircraft Design	CR	03		--	--	03	50	50
3		Control, Guidance and Navigation	CR	03	--	--	--	03	50	50
4		Space Mechanics (Orbital mechanics)	CR	03	--	--	--	03	50	50
5		Program Elective – 2	CR	03	--	--	--	03	50	50
6		Open Elective – 2	CR	03	--	--	--	03	50	50
7		Aero Systems Lab	CR	--	--	02	--	01	50	50
8		Product Design - 2	CR	--	--	02	--	01	50	50
9		Mini Project – IV	CR	--	--	--	02	01	50	50
GRAND TOTAL = 900				18	00	04	02	21	450	450

Scheme sent on 11 Jul:

SL	COURSE CODE	COURSE TITLE	CR / AU	SCHEME OF TEACHING						SCHEME OF EVALUATION	
				L	T	P	S/P	C	No. of hour/Week	CIA	END EXAM
1	16AS305	Control Theory	CR	03	01	--	--	04	04	40	60
2	16AS306	Aircraft Stability and Control	CR	04	--	--	--	04	04	40	60
3	16AS307	Aircraft Systems	CR	03	--	--	--	03	03	40	60
4	16AS308	Orbital Mechanics	CR	03	--	--	--	03	03	40	60
5	16AS3XX	Program Elective – 2	CR	03	--	--	--	03	03	40	60
6	16IE3XX	Open Elective – 2	CR	03	--	--	--	03	03	40	60
7	16AS373	Aero Systems Lab	CR	--	--	01	--	1.5	03	40	60
8	16AS374	Product Design - 2	CR	--	--	01	--	1.5	03	40	60
9	16AS382	Mini Project – IV	CR	--	--	--	01	02	02	40	60
TOTAL				18	02	02	01	25	28	360	540

3. In 7th Sem, the subject of Avionics is indicated. Does it also cover Aircraft Electrical Systems?

4. Would appreciate clarifications on the above please

Warm regards
Balaji

On Sat, Jul 11, 2020 at 2:07 PM DSU AERO AE <chairman-ae@dsu.edu.in> wrote:
Dear Sir,

Thanks for your mail. Program electives for 5th & 6th Sem are shown in the attached syllabus. Other semesters need to be discussed. Open Electives are offered from the other departments and I need to collect these details.

Thanks & Regards,

Prof. B.V.N. Ramakumar
Chairman, Department of Aerospace Engineering,
Dayananda Sagar University,



DAYANANDA SAGAR UNIVERSITY

SCHOOL OF ENGINEERING

Department of Aerospace Engineering

DATE - 11/01/2024

Summary of Comments Received from BOS Members and Actions Taken against the comments

Sl. No	SEM	Name of the BOS member	Name of the Course	Comments/ Reviews	Actions Taken
1.	IV	Dr K.Ramachandra	Manufacturing process (Theory)	Do we have the possibility of Additive Manufacturing as a part of Theory?	Exclusive module for advanced additive manufacturing techniques has been included
2.			Aerospace Structures	The tutor should be able to relate a few examples of Aerospace Vehicles for each of the 5 modules and the concepts being discussed. Otherwise it is common to typical Mech Engg Syllabus	✓ Examples related to Aerospace vehicles were planned to discuss during lecture hours and same will be reflected in lesson plan ✓ Reference: 1. Aerospace Structures and Materials Editor: Yucheng Liu 2. Aircraft structures for engineering students by Megson 3. Aircraft structures by David J Peery
3.			Mechanism and Machine theory	Brief coverage on other types of gears: Helical, Bevel gears: Internal and	Various types of advanced gears and mechanisms are included as a part of theory

				External gears	
4.			Mechanism and Machine theory	Change of Title - Gear Terminology	Changes have been updated
5.			Manufacturing process (Lab)	It makes sense if the Lab can be augmented with a simple Additive Mfg system and a couple of experiments can be introduced	Experiments such as product design and development using STL and FDM methods were included as part of laboratory
6.			Aircraft Systems	Are there a Controls/ Instrumentation Lab planned at least in the later Semesters?	We have systems laboratory as a part of our syllabus in the upcoming semester
7.	VI		Orbital Mechanics	Launch Vehicle Dynamics or Satellite Attitude Dynamics Can we have choice within the module? What does this choice indicate in terms of logistics etc	<ul style="list-style-type: none"> ✓ In the draft copy of the syllabus, topics on Launch Vehicle Dynamics or Satellite Attitude Dynamics were included to receive feedback from the BOS members. ✓ Based on the feedback received, Launch Vehicle Dynamics has been considered in the syllabus.
8.			Manufacturing process	What is the Value addition in Manufacturing Processes as Elective subject in VI Sem as compared to the Core subject in IV Sem	Course on Manufacturing process was not included in the syllabus of 2016 scheme for VI semester students of (2018-2022) batch but it is introduced as an elective course, whereas MP is included as a mandatory course for students of 2019-2023 batch
9.	VI	Prof. C D Balaji	MBSE	A few corrections / updates in MBSE syllabus of 6th Semester	Syllabus is updated as per the remarks provided
10.	IV	Dr. Balamurugan	Mechanism and Machine theory	Kindly include Balancing of Reciprocating masses	Balancing of reciprocating masses has been included
11.	VI		Aircraft Systems	Only hydraulic system is covered. Pneumatic systems are used Landing	Pneumatic powered auxiliary landing gear systems are part of the syllabus

				Gear Emergency extension purpose.	
12.	VI		Aircraft Systems	Kindly include Power by Wire System techniques, EHA etc. These are modern technologies	Power by wire system and EHA are included as a part of the syllabus
13.	IV & VI	Dr. Ranganayakulu		No comments/changes required	NIL

Rama Kumar
11/01/2021

B V N Ramakumar
Chairman & Professor
Department of ~~Aerospace Engineering~~
School of Engineering,
Dayananda Sagar University
Kudlu Gate, Bengaluru



Approval for 4th&6th Sem B.Toch syllabus

24 messages

DSU AERO AE <chairman-ae@dsu.edu.in>

Mon, Jan 4, 2021 at 4:44 PM

To: Ramachandra <drkrc2006@gmail.com>, Balamurugan G <gbala@nal.res.in>, "Dr. Chonnu Ranganayakulu" <ranganayakulu@jetmail.ada.gov.in>, C D Balaji <cdbalaji@gmail.com>, Sivakumar Delvandren <dsikumar@iisc.ac.in>, SUBRAMANYA Koodli <Koodli.SUBRAMANYA@3ds.com>
Cc: Registrar DSU <registrar@dsu.edu.in>, "Dr.A.Srinivas Dayananda Sagar University" <dean-engg@dsu.edu.in>

Dear BOS Members,

Good wishes of the day.

Wishing You and Your Families A Very Happy and Prosperous New Year 2021. Our sincere thanks for all your support given to DSU till date.

We completed classes and exams for the current semester and starting our next semester classes from 11th January. The first batch students will come to 6th Semester and the second batch will come to 4th Semester.

We prepared attached syllabus for the 6th semester students. We also made some changes for the upcoming 4th semester syllabus. Request your review and suggestions on the same. Also attached the approved syllabus for earlier semesters of these two batches for your reference.

Request your review comments before 7th January. This will help us in making needful changes and get approval from the Academic Council before the start of our semester classes.

Our sincere thanks in advance for your kind cooperation. Looking forward to meeting you soon in person.


Thanks & Regards,


Prof. B.V.N. Ramakumar
Chairman, Department of Aerospace Engineering,
Dayananda Sagar University,
Hosur Main Road, Kudlu Gate
Bengaluru- 560 068.


Mobile: +91-9448091238
Email : chairman-ae@dsu.edu.in


Website : www.dsu.edu.in

4 attachments

 syllabus IVsem_Updated.docx
60K

 syllabus VI sem.docx
72K

 B.Tech ASE 2018-19 Batch - up to 5th Semesters - Approved (1).pdf
804K

 B.Tech ASE - 2019 - up to 3rd Semester - Approved (1).pdf
459K

Mail Delivery Subsystem <mailer-daemon@googlemail.com>
To: chairman-ae@dsu.edu.in

Mon, Jan 4, 2021 at 4:44 PM



Address not found

Your message wasn't delivered to **ranganayakulu@jetmail.ada.gov.in** because the address couldn't be found, or is unable to receive mail.

The response from the remote server was:

550 5.1.1 Error: invalid recipients is found from 209.85.208.51

Final-Recipient: rfc822; ranganayakulu@jetmail.ada.gov.in
Action: failed
Status: 5.1.1
Remote-MTA: dns; mail-ex1.ada.gov.in. (14.139.154.181, the server for the domain jetmail.ada.gov.in.)
Diagnostic-Code: smtp; 550 5.1.1 Error: invalid recipients is found from 209.85.208.51
Last-Attempt-Date: Mon, 04 Jan 2021 20:21:46 -0800 (PST)

----- Forwarded message -----

From: DSU AERO AE <chairman-ae@dsu.edu.in>
To: "Dr. Chennu Ranganayakulu" <ranganayakulu@jetmail.ada.gov.in>
Cc:
Bcc:
Date: Tue, 5 Jan 2021 09:51:25 +0530
Subject: Fwd: Approval for 4th&6th Sem B.Tech syllabus
----- Message truncated -----

DSU AERO AE <chairman-ae@dsu.edu.in> Wed, Jan 6, 2021 at 4:22 PM
To: Ramachandra <drkrc2006@gmail.com>, Balamurugan G <gbala@nal.res.in>, "Dr. Chennu Ranganayakulu" <ranganayakulu@jetmail.ada.gov.in>, C D Balaji <cdbalaji@gmail.com>, Sivakumar Deivandren <dsukumar@iisc.ac.in>, SUBRAMANYA Koodli <Koodli.SUBRAMANYA@3ds.com>
Cc: Registrar DSU <registrar@dsu.edu.in>, "Dr.A.Srinivas Dayananda Sagar University" <dean-engg@dsu.edu.in>

Dear Sirs,
A gentle reminder for your input.

Thanks & Regards,

Prof. B.V.N. Ramakumar
Chairman, Department of Aerospace Engineering,
Dayananda Sagar University,
Hosur Main Road, Kudlu Gate
Bengaluru- 560 068.

Mobile: +91-9448091238
Email : chairman-ae@dsu.edu.in

Website : www.dsu.edu.in

[Quoted text hidden]

Mail Delivery Subsystem <mailer-daemon@googlemail.com>
To: chairman-ae@dsu.edu.in

Wed, Jan 6, 2021 at 4:23 PM

Thanks & Regards,


Prof. B.V.N. Ramakumar
Chairman, Department of Aerospace Engineering,
Dayananda Sagar University,
Hosur Main Road, Kudlu Gate
Bengaluru- 560 068.


Mobile: +91-9448091238
Email : chairman-ae@dsu.edu.in

Website : www.dsu.edu.in

[Quoted text hidden]

2 attachments

 **syllabus IVsem_Updated.docx**
53K

 **syllabus VI sem.docx**
58K

Rama Kumar
11/01/2021
Chairman
Dept of Aerospace Engineering
School of Engineering
Dayananda Sagar University
Kudlu Gate, Bengaluru



DAYANANDA SAGAR UNIVERSITY
SCHOOL OF ENGINEERING
DEPARTMENT OF AEROSPACE ENGINEERING

DATE:28/05/2022

BOS MEETING

AGENDA:

1.Modifications proposed for

2021 batch

2020 batch

2019 batch

2. Proposal of NEP Implementation

3.Discussions on students & faculty feedback on curriculum

Modifications proposed for 2021 Batch

- ✓ Syllabus modifications for Materials of Solids and Aircraft Structural Mechanics
- ✓ Merging manufacturing lab into composites lab and rename this as Materials & Manufacturing
- ✓ Moving Propulsion lab to 4th Semester from 5th Semester

Syllabus modifications for Materials of Solids and Aircraft Structural Mechanics

Merging manufacturing lab into composites lab and rename this as Materials & Manufacturing

Moving Propulsion lab to 4th Semester from the 5th Semester

Modifications proposed for 2020 Batch -5th Semester

Modifications proposed for 2019 Batch

- ✓ Introduction of New lab “Avionics Lab”
- ✓ Removing AI & ML lab
- ✓ Offering AI&ML in Aerospace (Including Lab) as an elective
- ✓ Offering Aerospace Technical Publication as an elective

NEP Implementation

- ✓ Offering Minor in Aerospace Engineering
- ✓ Subjects proposed
- ✓ Introduction to Aerospace Engineering, Aerodynamics, Aircraft Propulsion, Aircraft structures, Aircraft performance, Aircraft Systems and Instrumentation
- ✓ Offering verticals like Propulsion, Structures, Aerodynamics, Avionics, Systems Engineering
- ✓ Working on AR/VR lab & Drones Lab for skill development
- ✓ Discussion on multiple entry/exits, ABC
- ✓ Discussion on M.Tech in Defence Technology
- ✓ Discussion on value added courses (1 credit course in house & Industry) Training on CREO, Web design, IoT
- ✓ Discussion on the first-year course from Aerospace Engineering


Chairman
Dept of Aerospace Engineering
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Dayananda Sagar University
Kudlu Gate, Bengaluru



DAYANANDA SAGAR UNIVERSITY
DEPARTMENT OF AEROSPACE ENGINEERING

Students and faculties feedback report on Curriculum

- ✓ This report focuses on the opinion of the students and faculties about the curriculum and based on the feedback received mixed opinion ranged from average to excellent.
- ✓ The outcome is formulated according to curriculum covering the interdisciplinary topics, Current trends has been good.
- ✓ In terms of acquiring the employability and entrepreneurship skills has been marked as good.
- ✓ Courses related to project works to be introduced earlier than in 7th semester
- ✓ Courses that provides job opportunities to be introduced earlier
- ✓ The students aimed to be helpful to the society and human values and ethics in which the curriculum is practiced.
- ✓ It is always advisable that the curriculum mainly oriented towards the course outcome aiming towards the innovation, competitive exams, academic flexibility in academic framework.
- ✓ The feedback has been valued to improve to quality and advance the feedback.

Rana Kund

Chairman
Dept of Aerospace Engineering
School of Engineering
Dayananda Sagar University
Kudlu Gate, Bengaluru



DAYANANDA SAGAR UNIVERSITY

DEPARTMENT OF AEROSPACE ENGINEERING

Action taken report on feedback received from students and Faculty on the Curricula and syllabi

The summarized feedback on the Curricula and syllabi received during 2021-22 as listed below and the respective actions proposed for the same in various areas to be translated to changes in the curriculum (content) and pedagogy (delivery methods) to better meet the aspirations and expectations in line with the program outcomes. The points below were discussed **in BOS Meeting**

- I. There is a **need for professional electives** that match **industry expectations** to improve the employability. In particular, students expect to be ready for attending interviews with good overall understanding of current aerospace industry including the installation, maintenance and operational aspects of commercial aircraft. Keeping these in mind it is suggested that the **current elective on Technical Publication by Capgemini be moved from the 8th Semester to the 7th Semester**. Through this, the knowledge so acquired will be readily relevant to appear for core industry job positions.
- II. There was an opinion that a more **formal coverage of airworthiness** is needed with respect to understanding the different sections applicable and so forth. Towards this, it is proposed that the **coverage in the course designed by Capgemini be leveraged to bridge this gap**.
- III. Faculty felt that **Aircraft Design is a generic subject** that all our graduations would benefit from. In line with this thinking, it is proposed that Aircraft Design be moved from being a **7th Semester elective to become a 5th Semester Core Course**. By appreciating the nuances of how various mission profiles, aircraft configurations and design of systems are integrated,

the students will acquire a better overall understanding of the application of the core subjects being covered.

- IV. Based on the trends of mini projects, it was noticed that many opportunities are emerging in areas that draw upon a preliminary understanding of avionics. Many students are choosing to execute projects involving a good amount of electronics, controls, data acquisition, sensors and electrical and computational devices. Keeping this in mind, it is proposed to move the Avionics core course from 7th Semester to the 5th Semester itself so that they get a better practical knowledge of design and working such systems.
- V. The faculty felt that in current form the structures coverage has some repetitions in terms of the material properties, stress strain, Uniaxial tension test etc. At the same time, there is an opportunity to provide better coverage in some topics like combined loading situation. With these in mind, it is proposed to revise the syllabi of structural courses in the 3rd and 4th Semester to address these gaps.
- VI. There is a need to have more choice-based electives and flexible learning. With this in mind, it is proposed to have NPTEL based electives as an option available to students not just in the final year, but from the earlier semesters as well.

Rama Kumar
Chairman

Department of Aerospace Engineering

Chairman
Dept of Aerospace Engineering
School of Engineering
Dayananda Sagar University
Kudlu Gate, Bengaluru

Forwarded to BOS for further discussions on the upcoming meeting



DAYANANDA SAGAR UNIVERSITY

SCHOOL OF ENGINEERING

DEPARTMENT OF AEROSPACE ENGINEERING

BOS - Minutes of Meeting

28/05/2022

- Manufacturing lab is made a part of Composite lab where 3-d printing will be introduced.
- Members suggested to include metal 3d printing as a part of the syllabus or the department should plan an industrial visit to NAL composite section or other composite industries to enhance student's knowledge.
- Basics of Material Properties should be included in mechanics of solids
- **Composite theories of Failure** should be introduced in the syllabus of Aerospace Materials.
- Discussions on **Tech pub Syllabus** and the percentage of **airworthiness concept in each module**
- **Airworthiness** can also be introduced as an elective course.
- Discussion made on introduction of Propulsion lab to IV semester and Avionics (lab and theory course) to V semester students of 2020 batch
- As a part of Avionics lab satellite communication systems can be upgraded to communicate with a real time satellite
- Principles of Management and Economics course will be introduced in VII semester for 2020 batch students
- Avionics lab is introduced to VII semester students (2019batch) in place of AI & ML lab
- Second module of Aircraft Systems and Instrumentation can be considered for Aircraft Design

- Research Methodology can be floated as an elective since it will be helpful for students aspiring for Higher education
- General name can be considered for the M. Tech program on Defence and Technology
- Electives on specific vertical will make students to get specialized in his/her field of interest
- Discussions on **Drone and AR VR labs**
- Approval of Introduction of Space Technology syllabus
- Proposed syllabus on Orbital Mechanics should be compared with other curriculum of other universities
- Discussion on the feedback received from the students and faculties regarding the syllabus
- **National Education Policy and its benefits were discussed**

Sl. No	Name of member	Designation	Signature
1.	Dr. B V N Ramakumar	Professor & Chairman – AE	Rama kumar 28/5/2022
2.	Dr. Ramachandra	External Member, NDRF	J. Ramachandra 28/5/22
3.	Dr. Balamurugan - G	External Member - NAL	B. Murugan 28/05/22
4.	Dr. Sivakumar	External Member – IISC	S. Kumar = 28/05/22
5.	Dr. Suryanarayana G K	Professor	G. K. 28/5/22
6.	Dr. Sharatkumar Variyar	Associate Professor	Variyar S.M. 28/5/22
7.	Mr. Srinath R	Assistant Professor	S. R. 28/05/22
8.	Mr. Kartik S Tandel	Assistant Professor	K. S. 28/05/22
9.	Ms. Krishnam Suhrutha	Assistant Professor	Suhrutha K. 28/05/22