Department of

SCIENCE AND HUMANITIES

Minutes of the 8th Meeting of the Board of Studies held on
8th June 2024 at 10.00 AM

Venue: Seminar Hall / S&H
National Engineering College, K.R.Nagar, Kovilpatti

NATIONAL ENGINEERING COLLEGE, K.R.NAGAR, KOVILPATTI – 628 503
(An Autonomous Institution · Affiliated to Anna University, Chennai)
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8th Board of Studies Meeting in the Department of
SCIENCE AND HUMANITIES

Venue: Seminar Hall / S & H
National Engineering College,K.R.Nagar, Kovilpatti – 628 503

Date & Time: 08.06.2024 & 10.00 AM

AGENDA

S & H /BoS 8.1	:	Welcome address by Dr. M.A. Neelakantan, Board Chairman, Prof. and Head, Department of Science and Humanities.
S & H / BoS 8.2	:	Confirmation of the previous BoS meeting minutes (7th) for the first year UG and PG degree Programme in the Department of Science and Humanities held on 2nd December, 2023.
S & H / BoS 8.3	:	Business brought forward by the Chairman, Board of studies. Fourth Semester Syllabi of Open Elective Science Courses for all B.E/B.Tech. programmes under R-2023
S & H / BoS 8.4	:	Suggestions given by the BoS Members

National Engineering College, K.R.Nagar, Kovilpatti – 628 503
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F. No. 1-1/NEC/S & H

8th Jun 2024

Dear Sir/Madam,

Sub: ***Minutes of the 8th Meeting of the Board of Studies in the Department of Science and Humanities - reg.***

Kindly find the attachment of the minutes of the 8th meeting of the Board of Studies, Department of Science and Humanities, National Engineering College, K.R.Nagar, Kovilpatti – 628 503, held on 8th June 2024 at 10.00 AM in the seminar hall, Department of Science and Humanities.

It is requested that comments on the minutes, if any, may please be sent by email at hodsh@nec.edu.in or by post at the earliest. If no comments are received within ten days, the minutes shall be taken as confirmed.

With kind regards,

Yours sincerely,

Dr.M.A.Neelakantan

National Engineering College, K.R.Nagar, Kovilpatti – 628 503
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MINUTES OF THE MEETING

The 8thmeeting of the Board of Studies of the Science and Humanities was held on 8th June 2024 at 10.00 AM, in Seminar Hall, Department of Science and Humanities, National Engineering College.

- The following members were present:

Dr.M.A.Neelakantan, Professor & Head	CHAIRMAN
Dr.S. Thalamuthu, Associate Professor / Chemistry	INTERNAL MEMBERS
Dr.S.Chithiraikumar , Assistant Professor (SG) / Chemistry	
Mr.J.Thamba, Assistant Professor / Chemistry	
Dr. B.Annaraj, Assistant Professor(SG) / Chemistry	
Dr.S. Geetha, Associate Professor / Mathematics	
Dr.M.Annapoopathi, Assistant Professor (SG) / Mathematics	
Ms.S.S.BasithaParveen, Assistant Professor / Mathematics	
Mr.S.Sivabalan, Assistant Professor / Mathematics	
Mr.P.Ganapathy, Assistant Professor / Mathematics	
Dr.A.PanimayaValan Rakkini, Assistant Professor (SG) / Physics	
Dr.V.RamaSubbu, Assistant Professor / Physics	
Dr.M.Aravind, Assistant Professor / Physics	
Dr.N. Sankara Subramanian Professor of Physics, Thiyagarajar College of Engineering, Madurai	UNIVERSITY NOMINEE
Dr. Raju K. George Professor of Mathematics, Dean (R&D, IPR), Indian Institute of Space Science and Technology, Thiruvananthapuram	ACADEMIC EXPERTS
Dr.N.Rajendran Professor and Head Department of Chemistry Anna University - Chennai	

Dr. S. Mahalingam Professor, Department of Biotechnology, IIT, Madras	
Dr. M. Pandiaraj Senior Scientist, Electrodics and Electrocatalysis Division, CSIR-CECRI, Karaikudi	SCIENTIST
Mr.S.AnbuKumar General Manager – Operations, Superteck Industries, Coimbatore	MERITORIOUS ALUMNUS
Mr.K.Balaji , Final year / MECH	STUDENT MEMBERS
Ms.S.Gayathri, Final year / ECE	
Mr.S.Hari Krishna, Final year / EEE	
Mr.V.Santhosh, Final year / IT	
Mr.M.Akalyalaxmi, Final year / CIVIL	
Ms.S.Uma Maheswari, Prefinal year / CSE	
Mr.V.J.S.Manian, Prefinal year / AI & DS	

S&H / BoS 8.1: **WELCOME ADDRESS BY CHAIRMAN, BOARD OF STUDIES, DEPARTMENT OF SCIENCE AND HUMANITIES**

The chairman BoS of the Science and Humanities welcomed and introduced the members of 8th Board of Studies and thanked them for sparing their valuable time for attending the meeting.

S& H / BoS 8.2: **TO CONFIRM THE MINUTES OF THE SEVENTH BOS MEETING HELD ON 2nd DECEMBER 2023.**

The minutes of the seventh Board of Studies meeting held on 2nd December 2023 were communicated to the members. The comments received had been incorporated and placed for confirmation. The 20th academic council approved the same.

S&H / BoS 8.3: **TO CONFIRM AND APPROVE THE SYLLABI** of

Fourth Semester Open Elective Science Courses for all B.E/B.Tech. programmes under R-2023

IV-Semester Courses

S.No	Courses	Branch	Credit
	Mathematics		
1	Optimization Techniques	All Branches	3
2	Numerical Methods	MECH, CSE, EEE, IT, AI&DS and CIVIL	3

S.No	Courses	Branch	Credit
3	Random Processes and Queueing Theory	CSE and IT	3
4	Statistics and Numerical Methods	ECE	3
5	Transforms and Discrete Mathematics	MECH, ECE and CIVIL	3
6	Number Theory	ECE, CSE, IT and AI&DS	3
7	Linear Algebra and Discrete Mathematics	EEE	3
	Physics		
1	Foundations of Nano Science	MECH	3
2	Fundamentals of Laser Technology	MECH	3
3	Photonics	ECE	3
	Chemistry		
1	Sensors For Engineering Applications	IT	3
2	Polymer Science and Technology	MECH	3
3	Spectroscopic Methods	Ph.D Course work	3
4	Analytical Methods		3
5	Electrochemical Storage and Conversion		3
	Biology		
1	Biology for Computing	CSE	3
2	Biology for Engineers	EEE	3

RESOLVED TO APPROVE the

Fourth Semester Open Elective Science Courses for all B.E/B.Tech. programmes under R-2023

S& H /BoS 8.4: SUGGESTIONS GIVEN BY THE BoS MEMBERS

SUGGESTIONS	ACTION TAKEN
MATHEMATICS	
Numerical Methods Mentioned to add "Least square method in Curve fitting" and to remove "Newton's divided difference method" in CO2	The topic "Newton's divided difference" was replaced with "Least square method - Curve fitting" in CO2.
Insisted to mention "Crank Nichelson and Bender Schmf dt methods" in CO5	The topic "Crank Nichelson and Bender Schmidt methods" were mentioned in CO5
Suggested to include python techniques for solving algebraic and transcendental equations	Recommended suggestions were carried out

SUGGESTIONS	ACTION TAKEN
Recommended to include "Erwin Kreyszig - Advanced Engineering Mathematics and Numerical Solution of Partial Differential Equations - G D. Schmidth"	Recommended books were added in the syllabus
Optimization Techniques Suggested to altered the statements of CO2 & CO5: "CO5–Non Linear Constained Optiumization" and the following topics were included: Optimization using Gradient Descent, Constrianed optimization and Lagrange multipliers, Convex optimization, Non linearconstained optimization	CO2 contents were removed and Non Linear Constained Optimization contents were added as CO5.
Number Theory The topics of CO3 were altered to CO5 – the concepts of congruences in Cryptography and the following topics were included: RSA Algorithm, Rabin Cryptosystem as CO5	CO3 contents were removed and concepts of congruences in Cryptography was included as CO5
Statistics and Numerical Methods Insisted to include "Confidence interval"in CO4 Suggested to include the Application of Statistics in Quality Control in CO5 - Design of Experiments	The topic "Confidence interval"was included in CO4 Application of Statistics in Quality Control was included in CO5
Random Processes and Queueing Theory Recommended to include "System Simulation -Jeoffery Gordon, PHI Publishers" as a Reference book	Recommended book was added in the syllabus
Linear Algebra and Discrete Mathematics Recommended to include "Erwin Kreyszig-Advanced Engineering Mathmeatics" and also include Statistics and Numerical Methods and Optimization Techniques as a Reference book	Recommended book was added in the syllabus
PHYSICS	
Nanomaterials for Engineers The course name "Foundations of Nanoscience"was suggested to be	The course name was changed as "Nanomaterials for Engineers"

SUGGESTIONS	ACTION TAKEN
testing process"and to include content on "Laser measurements and Testing"	
Recommended to modify the CO5 statement as "Organize the advanced applications and safety measures of laser" and to include the contents such as : Laser advanced application in defence, industry for material handling: ASRS and AGV, medicine and laser safety measures	CO5 statement was modified and the contents were included
Photonics Suggested to modify CO1 as "explain the basics of Photonics" and to include two more concepts in "light manipulation Faraday's rotation and Raman-Nath diffraction experiment in basics of photonics"	CO1 statement was modified and the contents were included
Suggested to modify CO2 as "demonstrate the applications of photonic crystals" and to include two more concepts in "applications of photonic crystals : 1D Bragg grating, periodic dielectric wave guide, 2D photonic crystal slab and fibre"	CO2 statement was modified and the concepts were included
Suggested to modify CO3 as "outline the basics of bio photonics" and to include the contents such as applications of bio photonics - bio chip, DNA micro-arrays, gene chip, lab on chip	CO3 statement was modified and the contents were included
Suggested to modify CO4 as "interpret the quantum confinement in photonic materials"	CO4 statement was modified
Suggested to modify the CO5 statement and to include four applications of photonicmaterials such as : electro-optical metamaterials - phase -change metamaterials -metamaterial perfect absorbers and thermal emitters - solar energy harvesting	CO5 statement was modified and the applications were included

SUGGESTIONS	ACTION TAKEN
CHEMISTRY	
Polymer Science and Technology Suggested to change the course content in the following order "compounding of plastics followed by polymerization of plastics"	Suggestion was carried out
Suggested to remove the following topics in CO2 determination of i) percentage of the solids, ii) percentage of the yield, iii) melting range, iv) modification of polymers	Suggested topics were removed
Suggested to modify 'Plastics for value addition' instead of 'Plastics for energy recovery and road construction' in CO5	Modified as 'Plastics for value addition' in CO5
Sensors for Engineering Applications Suggested to remove the "comparison of thermal sensor and temperature sensor" in CO2	The topic was removed
Recommended to merge the electric sensor contents given in CO3 with electrochemical sensor in CO4	The contents of electric sensor and electro chemical sensor were merged in CO4
Recommended to include the text book "Handbook of Modern Sensors: Physics, Design and Applications, fifth edition, Springer, Jacob Fraden"	The text book was included
Spectroscopic Methods Suggested to change the term Inorganic molecules as simple molecules in CO1	The term was changed as simple molecules
Analytical Methods Suggested to remove the topic "Theoretical aspects of titration curves and end point evaluation" in CO3	Suggested topic was removed.
Suggested to remove the topic "Factors affecting TGA and DTA"	Suggested topics were removed.
Suggested to include certain topics such as Scintillation Counter, Gamma Counter, Neutron Activation Analysis	Suggested topics were included

SUGGESTIONS	ACTION TAKEN
changed as "Nanomaterials for Engineers"	
Suggested to change the order of contents in CO1	The order of contents in CO1 were modified
Suggested to replace the topic "Properties of Nanomaterials" in CO4 to CO2 and to modify the CO2 statement as "interpret the different properties of nanomaterials"	CO2 content was replaced and the statement was modified
Suggested to modify the CO3 statement as "demonstrate the synthesis of nanomaterilas"	CO3 statement was modified
Suggested to modify the CO4 statement as "illustrate the characterization of nanomaterials" and to include the experimentation on nanohardness"	CO4 statement was modified and the content was included
Suggested to modify the CO5 statement as "organize the applications of nanomaterials" and to include the applications of nano sensors	CO5 statement was modified and included the applications
Fundamentals of Laser Technology Suggested to modify the CO1 Statement as "explain the fundamental concepts of Laser"	CO1 statement was modified
Suggested to modify the CO2 statement as "demonstrate the laser surface modification processes" and to include the content "surface heat treatment and modification process"	CO2 statement and content were modified
Suggested to modify the CO3 statement as" describe the laser machining process" and also include "micro machining process in CO3	CO3 statement and content were modified
Suggested to modify the CO4 statement as "identify the laser measurement and	CO4 statement was modified and the suggested contents were included

SUGGESTIONS	ACTION TAKEN
and PET (Positron Emission Tomography) in the measurement of radioactivity in CO5	
Electrochemical Storage and Conversion Suggested to replace the topic battery types and super capacitors by introducing a topic concept of electrochemistry	Suggested topic was replaced
Recommended to include charge transfer reaction in CO1	Suggested topic was included
Suggested to include battery and its types at the beginning of CO2.	Suggested topic was included
Suggested to include the fabrication method of supercapacitors	Suggested topic was included
BIOLOGY	
Biology for Engineers Suggested to replace the term Bioinspired materials with Bioinspired devices in CO1	Replaced the term Bioinspired devices in CO1
Suggested to include Surface Plasmon Resonance Spectroscopy instead of Fluorescence spectroscopy in CO2	Surface Plasmon Resonance Spectroscopy was included
Suggested to change the topic "principle and components of the light and electron microscope" as "light and electron microscope". Insisted to include the topic "CT Scan" in CO3	Changed the topic as "light and electron microscope" and the topic "CT Scan"was included
Suggested to remove the fabrication technique and to include the elasticity, stress and strain	The fabrication technique was removed and the suggested physical properties were included
Biology for Computing Suggested to include the topics "SDS – PAGE" and "2D- Agarose gel electrophoresis" in CO1	Suggested topics were included
Recomended to include the topic "NGS methods of sequencing"in CO2	The NGS sequencing methods were included

The members had a brainstorming discussion and interaction among themselves. After discussion, fruitful suggestions were incorporated appropriately in the Syllabi.

Based on the suggestions given by the members, BOS resolved to recommend the following to the Academic Council for further approval.

a) The Syllabi for 4th semester (Elective Science Stream) UG degree programme offered under Regulation 2023.

Ms.S.S.Basitha Parveen, Assistant Professor / Mathematics thanked all the members for their kind cooperation and the meeting came to an end.

Members Present

CHAIRMAN		
1.	**Dr.M.A.Neelakantan** Professor & Head	Board Chairman
ACADEMIC EXPERTS		
2.	Dr. Raju K. George, Professor of Mathematics, Dean (R&D, IPR), Indian Institute of Space Science and Technology, Tiruvandrum	08/06/2024
3.	Dr. N. Rajendran Professor & Head, Department of Chemistry Anna University, Chennai.	08/06/24
4.	Dr. S. Mahalingam Professor, Department of Biotechnology IIT, Madras.	07/06/24
SCIENTIST		
5.	Dr.M.Pandiaraj, Senior Scientist, Electrodics and Electrocatalysis Division, CSIR – CECRI, Karaikudi	01/06/24
UNIVERSITY NOMINEE		
6.	Dr.N.Sankara Subramanian Professor of Physics, Thiyagarajar College of Engineering, Madurai.	08/06/2024
SPECIAL INVITEE- MERITORIOUS ALUMNUS		
7.	Mr.S.Anbu kumar General Manager – Operations Superteck Industries, Coimbatore	08/06/24 S. ANBUKUMAR

INTERNAL MEMBERS		
1.	Dr.S. Thalamuthu, Associate Professor/Chemistry	
2.	Dr.S. Chithirai Kumar, Assistant Professor(SG)/Chemistry	
3.	Mr.J. Thamba Assistant Professor / Chemistry	
4.	Dr. B. Annaraj, Assistant Professor (SG) / Chemistry	
5.	Dr.S. Geetha, Associate Professor/Mathematics	
6.	Dr.M.Annapoopathi, AssistantProfessor(SG)/Mathematics	
7.	Ms.S.S.Basitha Parveen , Assistant Professor/Mathematics	
8.	Mr.S.Sivabalan , Assistant Professor / Mathematics	
9.	Mr.P.Ganapathy, Assistant Professor / Mathematics	
10.	Dr.A.Panimaya Valan Rakkini, Assistant Professor(SG)/ Physics	
11.	Dr.V.Rama Subbu, Assistant Professor / Physics	
12.	Dr.M.Aravind, Assistant Professor / Physics	
STUDENT MEMBERS		
13.	Mr.K.Balaji , Final year / MECH,	
14.	Ms.S.Gayathri, Final year / ECE,	
15.	Mr.S.Hari Krishna, Final year / EEE,	
16.	Mr.J.Santhosh, Final year / IT,	
17.	Mr.M.Akalya laxmi, Final year / CIVIL,	
18.	Ms.S.Uma Maheswari, Prefinal year / CSE,	
19.	Mr.V.J.S.Manian, Prefinal year / AI & DS,	

CHAIRMAN
BOARD OF STUDIES

Dr. M.A. Neelakantan, M.Sc., M.Phil., B Ed., Ph.D
Professor & Head
Department of Science & Humanities
National Engineering College (Autonomous)
K.R. Nagar, Kovilpatti - 628 503.

8th BOARD OF STUDIES MEETING - DEPARTMENT OF SCI. & HUM. ON 08.06.2024