

ACADEMIC COUNCIL

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA-700107

MINUTES OF THE SEVENTH MEETING OF THE ACADEMIC COUNCIL HELD ON

THURSDAY, 11th FEBRUARY, 2016 AT 11:00 AM AT "A" BUILDING CONFERENCE ROOM

Members Present:

1. Prof. (Dr.) Pranay Chaudhuri	Chairman
2. Prof. (Dr.) Madhurima Chattopadhyay, HOD, AEIE dept.	Member
3. Prof. (Dr.) Srabanti Basu, HOD, BT dept.	Member
4. Prof. (Dr.) Pinaki Bhattacharya, HOD, ChE dept.	Member
5. Prof. (Dr.) Tapas Sadhu, HOD, CE dept.	Member
6. Prof. (Dr.) Subhashis Majumder, HOD, CSE dept.	Member
7. Prof. (Dr.) Satadal Mal, HOD, EE dept.	Member
8. Prof. (Dr.) Prabir Banerjee, HOD, ECE dept.	Member
9. Prof. (Dr.) Tapan Chakrabarti, HOD, IT dept.	Member
10. Prof. (Dr.) Sukanta Sarkar, HOD, ME dept.	Member
11. Prof. (Dr.) Anindita M. Bhattacharya, HOD, Maths dept.	Member
12. Prof. (Dr.) N P Nayak, HOD, Phy dept.	Member
13. Prof. (Dr.) A M Ghosh, Nominee BOG	Member
14. Prof. Manoj Kumar Mitra, Nominee BOG	Member
15. Prof. (Dr.) Raja Datta, Nominee MAKAUT (WBUT)	Member
16. Prof. Krishanu Datta, Faculty Representative	Member
17. Prof. Nirman Ganguly, Faculty Representative	Member
18. Prof. Kalarab Ray, Member Secretary	Member

Leave of Absence Granted:

1. Prof. (Dr.) Debarati De, HOD, Chem dept.	Member
2. Prof. (Dr.) Suparna Chakraborty, HOD, Hum dept.	Member
3. Prof. (Dr.) Siddhartha Ray, Dean (UG)	Member
4. Prof. (Dr.) Subhabrata Sengupta, Dean (PG & Research)	Member
5. Prof. B B Paira, Nominee BOG	Member
6. Mr. Ivan Saha, Nominee BOG	Member
7. Prof. (Dr.) Prasid Syam, Nominee MAKAUT (WBUT)	Member
8. Dr. Syed Rafikul Islam, Nominee MAKAUT (WBUT)	Member
9. Prof. Sreeparna Dasgupta, Faculty Representative	Member

Special Invitees Present:

1. Prof. (Dr.) Sambhunath Biswas, Dy. Director
2. Prof. (Dr.) Dulal Chandra Ray, TEQIP Coordinator
3. Prof. B R Saha, Controller of Examinations
4. Prof. (Dr.) Ratul Kumar Majumdar, Registrar
5. Mr. Rajendra Sinha, Head-HR
6. Mr. Arvind Srivastava, Dy. Registrar
7. Ms. Sarbani Chakraborty, Asstt. Registrar-II



After granting leave of absence to members as mentioned above, the meeting started.

Welcome by the Chairman

The Chairman welcomed all members to this Seventh Academic Council meeting.

Agenda No. 1: Confirmation of the Minutes of the last Academic Council Meeting held on 16-Jul-2015

The minutes of the sixth meeting of the Academic Council held on 16.07.2015 were confirmed.

Agenda No. 2: Consideration of a new M Tech programme on Renewable Energy to be offered by Chemical Engineering Department from the academic year 2016-2017

A brief background was provided by the Chairman, mentioning the e-mail (containing the proposed curriculum) circulated amongst the Academic Council Members on 20.11.2015, and remarks / comments from the various members in response to the said e-mail.

A summary of approval on this resolution by circulation (attached as Annexure-IA), observations on this resolution by circulation (attached as Annexure-IB), together with the proposed curriculum (attached as Annexure-IC) after incorporation of the various review comments, were presented. After due ratification, the Council approved the proposed curriculum.

Agenda No. 3: Consideration of the Results of Odd Semester Examination 2015-2016

The analysis of the results, compiled by the Controller of Examinations (COE), was presented in PowerPoint form (a hard copy folder of the same was distributed to all members) by the Chairman. After due deliberations, the results were approved by the Council for necessary ratification by the BOG.

Agenda No. 4: Revision of the Syllabus for the Paper HMTS2002 [Indian Culture and Heritage]

A brief background was provided by the Chairman, mentioning the need to revise this syllabus. After some deliberations regarding possible inclusion of some post-independence aspects of Indian culture and heritage, the Council approved the proposed revised syllabus (attached as Annexure-II).

Agenda No. 5: Introduction of a new clause in the Examination Rules

The following changes (as per the last page of the hard copy folder on Result Analysis of Odd Semester Examination 2015-2016) to the examination rules, as suggested by the Controller of Examinations (COE), were discussed, and after due deliberations, were approved by the Council for necessary update of the Examination Rules.

Clause-5.4.2.2: The portion "There shall be no separate Supplementary Examinations under normal condition for I / II / III Year B Tech ... from the date of publication of Final Semester Result" is to be replaced by "There shall be no separate Supplementary Examinations for 2nd and 3rd year B Tech. However, for 1st year and final year students, Supplementary Examinations only in respect of 1st and 2nd semester for 1st year B Tech and M Tech, 3rd and



4th semester for final year M Tech, and 7th and 8th semester of final year B Tech shall be held within one month from the date of publication of results.”

Clause-5.4.2.6: This is to be included under “**Scope for Grade Improvement**” as “A candidate may apply to re-appear in a regular examination of an already passed paper to improve the grade by depositing the requisite fees. Maximum number of such attempts will be two (2) in the entire degree program. The internal assessment marks of the paper(s) will however be carried forward. If the grade obtained in the repeat examination is lower than his / her original grade, the original grade shall prevail.”

Agenda No. 6: Miscellaneous

A brief background was provided by the HOD-CSE, mentioning the need to revise the current syllabus for the paper CSEN2201 [Design and Analysis of Algorithms], and the revised syllabus (attached as Annexure-III) was approved by the Council.

There being no other item in the agenda, the meeting ended with a vote of thanks to the Chair.



Prof. (Dr.) Pranay Chaudhuri
Chairman
Academic Council



Prof. Kalarab Ray
Member Secretary
Academic Council

Annexure-IA

**Summary of Approval for Resolution by Circulation
to Academic Council Members regarding
new M Tech programme on Renewable Energy
by Chemical Engineering Dept., HIT, Kolkata-700107**

Sl. No.	Name	Remarks	Reference
Chairman			
01	Prof. (Dr.) Pranay Chaudhuri	Initiated circulation through Registrar	E-Mail dated 20-Nov-2015
Members			
02	Prof. (Dr.) Madhurima Chattopadhyay (AEIE)	Approved	E-Mail dated 20-Nov-2015
03	Prof. (Dr.) Srabanti Basu (BT)	Approved	E-Mail dated 20-Nov-2015
04	Prof. (Dr.) Pinaki Bhattacharya (ChE)	Approved	E-Mail dated 20-Nov-2015
05	Prof.(Dr.) Debarati De (Chem)		
06	Prof. (Dr.) Tapas Sadhu (CE)	Approved	E-Mail dated 20-Nov-2015
07	Prof. (Dr.) Subhashis Majumder (CSE)	Approved	E-Mail dated 20-Nov-2015
08	Prof. (Dr.) Satadal Mal (EE)	Approved	E-Mail dated 20-Nov-2015
09	Prof. (Dr.) Prabir Banerjee (ECE)	Approved	E-Mail dated 20-Nov-2015
10	Prof. (Dr.) Suparna Chakraborty (Hum)	Approved	E-Mail dated 23-Nov-2015
11	Prof. (Dr.) Tapan Chakrabarti (IT)	Approved	E-Mail dated 09-Feb-2016

Sl. No.	Name	Remarks	Reference
12	Prof.(Dr.) Anindita M Bhattacharya (Maths)	Approved	E-Mail dated 20-Nov-2015
13	Prof. (Dr.) Sukanta Sarkar (ME)	Approved	E-Mail dated 23-Nov-2015
14	Prof. (Dr.) N P Nayak (Phy)	Approved	E-Mail dated 23-Nov-2015
15	Prof. (Dr.) Siddhartha Ray, Dean (UG)	Approved subject to clarification	E-Mail dated 20-Nov-2015
16	Prof. (Dr.) Subhabrata Sengupta, Dean (PG & Research)	Approved	E-Mail dated 09-Feb-2016
17	Prof. (Dr.) A M Ghosh, Nominee BOG	Approved subject to clarifications	E-Mail dated 22-Nov-2015
18	Prof. Manoj Kumar Mitra, Nominee BOG	Approved subject to clarifications	E-Mail dated 25-Nov-2015
19	Mr. Ivan Saha, Nominee BOG	Approved	E-Mail dated 23-Nov-2015
20	Prof. B B Paira, Nominee BOG		
21	Dr. Syed Rafikul Islam, Nominee WBUT		
22	Prof. (Dr.) Prasid Syam, Nominee WBUT		
23	Prof. (Dr.) Raja Datta, Nominee WBUT	Approved subject to suggested modifications	E-Mail dated 20-Nov-2015
24	Prof. Krishanu Datta, Faculty Representative	Approved	E-Mail dated 21-Nov-2015
25	Prof. Sreeparna Dasgupta, Faculty Representative		
26	Prof. Nirman Ganguly, Faculty Representative	Approved	E-Mail dated 20-Nov-2015




Sl. No.	Name	Remarks	Reference
27	Prof. Kalarab Ray, Member Secretary	Approved	E-Mail dated 20-Nov-2015
Permanent Invitees			
28	Mr. Probir Roy, Director, KBT		
29	Mr. P K Agarwal, Chief Executive Officer, KBT		
Special Invitees			
30	Prof. (Dr.) Sambhunath Biswas, Dy. Director	Approved	E-Mail dated 23-Nov-2015
31	Prof. (Dr.) Dulal Chandra Ray, TEQIP Coordinator	Approved	E-Mail dated 23-Nov-2015
32	Prof. B R Saha, Controller of Examinations		
33	Prof. (Dr.) Ratul Kumar Majumdar, Registrar		
34	Mr. Rajendra Sinha, Head-HR		
35	Mr. Jaharlal Basu, Advisor-HR	Approved	E-Mail dated 23-Nov-2015
36	Mr. Arvind Srivastava, Dy. Registrar	Approved	E-Mail dated 23-Nov-2015
37	Ms. Sarbani Chakraborty, Asstt. Registrar-II	Approved	E-Mail dated 23-Nov-2015

PC



Annexure-IB

**Observations on Resolution by Circulation
from Academic Council Members regarding
new M Tech programme on Renewable Energy
by Chemical Engineering Dept., HIT, Kolkata-700107**

Sl.	Member Name	Subject [Paper Code]	Observation(s)
1.	Prof. (Dr.) Siddhartha Ray	Overall	All the labs are of 6 hours duration but with 2 Credits. Normally it should be 3 Credits. This may kindly be looked into.
2.	Prof. (Dr.) A M Ghosh	Overall	Will the name of the course be "Renewable Energy Sources" or "Renewable Energy Engineering"?
3.	- do -	- do -	The proposed Syllabus has given more emphasis on Chemical Engineering aspects paying less attention to Mechanical, Electrical and other engineering problems.
4.	Prof. Manoj Kumar Mitra	Overall	The number of papers (13 theoretical) appears too high in comparison to the nationally reputed institutions. However, if it matches with other programmes of the institution it may be accepted.
5.	Prof. (Dr.) Raja Datta	<ul style="list-style-type: none">Process Modelling and Simulation in Energy System [REEN5201]	Module 3 and Module 4 look to be very sketchy. I feel the content in these modules may be increased and given in detail.
6.	- do -	<ul style="list-style-type: none">Solar Laboratory [REEN5111]Energy Devices Laboratory [REEN5112]Non Solar Laboratory [REEN5211]	At least 8 to 10 or more experiments need to be specified under these labs.
7.	- do -	<ul style="list-style-type: none">Energy Transmission Technology [REEN6141]	The contents under Module 2 and Module 4 need to be increased. I observe that there are 10 lectures for each of these modules.



PC

**Heritage Institute of Technology
Department of Chemical Engineering
M Tech Curriculum on Renewable Energy**

1st Year 1st Semester

A				
Sl No.	Code	Course Title	Contact Hrs/Wk L-T-P	Credit
1.	REEN5101	Energy Resource	3-1-0	4
2.	REEN5102	Renewable Energy I	3-1-0	4
3.	REEN5103	Transport Processes	3-1-0	4
4.	REEN5104	Materials for Energy conversion systems	3-1-0	4
5.	REEN5141	Design of Heat Transfer Equipments	3-1-0	4
	REEN5142	Research Methodology and Project Management		
		Total Theory	15-5-0	20
B				
		Practical		
6.	REEN5111	Solar Laboratory	0-0-6	2
7.	REEN5112	Energy Devices Laboratory	0-0-6	2
		Total Practical	0-0-12	4
C				
		Sessional		
8.	REEN5121	Seminar -I	0-0-3	1
		Total Sessional	0-0-3	1
		Semester Total	15-5-15	25

1st Year 2nd Semester

A				
Sl No.	Code	Course Title	Contact Hrs/Wk L-T-P	Credit
1.	REEN5201	Process Modelling and Simulation in Energy System	3-1-0	4
2.	REEN5202	Advanced Engineering Thermodynamics	3-1-0	4
3.	REEN5203	Renewable Energy II	3-1-0	4
4.	HMTS5201	Foundation Course on Finance, Economics & Marketing	3-1-0	4
5.	REEN5241	Measurement and Control for Energy System	3-1-0	4
	REEN5242	Energy & Environmental Impact Analysis		
	REEN5243	Bio Energy		
	REEN 5244	Electronics Instrumentation & Control for Energy System		
		Total Theory	15-5-0	20
B				
		Practical		
6.	REEN5211	Non solar laboratory	0-0-6	2
		Total Practical	0-0-6	2
C				
		Sessional		
7.	REEN5221	Internship		2
8.	REEN5222	Seminar -II	0-0-3	1
		Total Sessional	0-0-3	3
		Semester Total	15-5-9	25

PL.



2nd Year 1st Semester

	A	Theory		
Sl No.	Code	Course Title	Contact Hrs/Wk L-T-P	Credit
1.	REEN6101	Energy Management and Audit	3-1-0	4
2.	REEN6102	Renewable Energy III	3-1-0	4
3.	REEN6141	Energy Transmission Technology	3-1-0	4
	REEN6142	Energy Trading and Pricing		
	REEN6143	Energy Storage from Renewable Resources		
		Total Theory	9-3-0	12
	B	Practical		
4.	REEN6111	Renewable Energy Laboratory	0-0-6	2
		Total Practical	0-0-6	2
	C	Sessional		
5.	REEN6121	Thesis Part-I	0-0-14	6
		Total Sessional	0-0-14	6
		Semester Total	9-3-20	20

2nd Year 2nd Semester

	A	Sessional		
Sl No.	Code	Course Title	Contact Hrs/Wk L-T-P	Credit
1.	REEN6221	Thesis Part-II	0-0-35	15
2.	REEN6222	Comprehensive Viva-Voce	-	5
		Total Sessional	0-0-35	20
		Semester Total	0-0-35	20

R.

[Signature]

Annexure-II

Indian Culture and Heritage (HMTS-2002)

B Tech 2nd Year 3rd /4th Semester

Contact Hours: 2L per week

Credit: 1

Module-I: Indian Philosophical Thought

- Basic features of Indian Philosophy
- Different Schools of Indian Philosophy (Brief Introduction)

Module-II: Modern Indian Thinkers

- Brief biographical introduction and importance of their contribution
 - Raja Rammohan Roy
 - Swami Vivekananda
 - Rabindranath Tagore
 - Mohandas Karamchand Gandhi
 - Dr B R Ambedkar

Module-III: Ancient Indian Science & Technology

- Mathematics:
 - Vedic Mathematics, geometry and geometric algebra, arithmetic
 - Post-Vedic-discovery of zero and decimal, value of pi, trigonometry and algebra, quadric equation, binomial theorem, area of triangle
 - Works of mathematicians: Baudhayana, Aryabhatta, Brahmagupta, Bhaskaracharya
- Astronomy:
 - Vedic astronomy-concept of solstices, months, year, time
 - Post-Vedic solar system, planets and their motions, earth as a sphere
 - Works of Aryabhatta I, Varahamihira, Brahmagupta, Bhaskara I and Bhaskara II
- Medicine:
 - Ayurveda and its scope
 - Medicines and medicinal plants, Diagnosis and treatment
 - Ayurvedic texts: SusrutaSamhita, CharakaSamhita, MadhavasNidan Sutra
- Architecture:
 - Civil works of Indus Valley period
 - Town planning in Kautilya's Arthashastra
 - Buddhist Stupas and Viharas - Ajanta and Ellora
 - Temple and Monument architecture - Mahabalipuram, Lingaraj temple, Khajuraho, Fatehpur Sikri and Taj Mahal
- Technology:
 - Knowledge of agriculture in Vedic and post-vedic period, crops, tillage and irrigation
 - Mining in Indus Civilization, literature in mining and geology
 - Shipbuilding in ancient India, ships and their categories, sea going vessels and international trade

Module IV: Art and Literature

- Overview of Indian Art and Literature (Dance, Music, Natyashastra)
- Iconic Texts of Ancient India
 - Gita and its Relevance
 - Vedas and Upanishads
 - Puranas
 - Mahabharata
 - Ramayana

PC

SD

Evaluation: Maximum Marks = 100 Internal Test =30 Semester-end Test = 70

Suggested Readings:

- 1) Chatterjee, S. & Datta. *Outlines of Indian Philosophy*. Calcutta: Calcutta University Press, 1939
- 2) Prabhananda, Swami. *Spiritual Values to Live By*. Calcutta: Ramakrishna Mission Institute of Culture, 2010
- 3) Valerian, Rodrigues. *The Essential Writings of B R Ambedkar*. New Delhi: OUP, 2004
- 4) *The Complete Works of Swami Vivekananda* (Volumes 4, 5, 6). Calcutta: Sri Ramakrishna Math
- 5) *The Cultural Heritage of India*. Vol-6. Calcutta: The Ramakrishna Mission Institute of Culture
- 6) *Eternally Talented India - 108 Facts*. Hyderabad: Vivekananda Institute of Human Excellence

R

DDJ

Annexure-III

Subject Name: Design & Analysis of Algorithms					
Paper Code: CSEN 2201					
Contact Hours per week	L	T	P	Total	Credit Points
	3	1	0	4	4

Module-I

1. Algorithm Analysis (3 Lectures)

Time and space complexity. Asymptotic Notations and their significance. Asymptotic Analysis. Finding time complexity of well known algorithms like-insertion sort, heapsort, Asymptotic solution to recurrences, Master Theorem.

2. Divide-and-Conquer Method. (3 Lectures)

Basic Principle, Examples, Analysis - Binary Search, Merge Sort, quicksort, Randomized Quicksort

3. Medians and Order Statistics. (3 Lectures)

4. Lower Bound Theory (1 Lecture)

Bounds on sorting and searching techniques.

Module-II

5. Dynamic Programming (5 Lectures)

Basic method, use, Examples: Matrix-chain multiplication, All pair shortest paths, LCS Problem. Optimal Binary Search Trees: Algorithm and speedup using quadrangle inequality.

6. Greedy Method (5 Lectures)

Elements of the greedy strategy. Huffman codes. Matroids and the greedy methods. Minimum cost spanning trees: Prim's and Kruskal's algorithms and their correctness proofs.

Module-III

7. Amortized Analysis (2 Lectures)

Aggregate, Accounting and Potential methods.

8. String matching algorithms: (3 lectures)

Different techniques – Naive algorithm , string matching using finite automata , and Knuth , Morris , Pratt (KMP) algorithm with their complexities .

PC



9. Graphs Algorithms (5 Lectures)

Topological Sorting. Strongly Connected Components. Shortest Path Algorithms: Dijkstra's and Bellman Ford with correctness proofs.

Module-IV

10. Disjoint Set Manipulation (2 Lectures)

UNION-FIND with union by rank, Path compression.

11. Network Flow: (2 lectures)

Ford Fulkerson algorithm, Max - Flow Min - Cut theorem (Statement and Illustration)

12. NP-completeness (3 Lectures)

P class, NP-hard class, NP-complete class. Relative hardness of problems and polynomial time reductions. Satisfiability problem, Vertex Cover Problem, Independent Sets, Clique Decision Problem.

13. Approximation algorithms (3 Lectures)

Necessity of approximation scheme, performance guarantee. Approximation algorithms for 0/1 knapsack, vertex cover, TSP. Polynomial time approximation schemes: 0/1 knapsack problem.

TEXTBOOKS:

1. Introduction To Algorithms by Cormen, Leiserson, Rivest and Stein. Third Edition, 2009. Prentice Hall.
2. Algorithm Design by Jon Kleinberg and Eva Tardos. Addison Wesley, 2005.

REFERENCES:

3. Computer Algorithms: Introduction to Design and Analysis by Sarah Basse and Allen van Gelder. 3rd Edition, Addison Wesley.

PK

