DVV Clarifications
Metrics Level Deviations

1.1.2	**Percentage of Programmes where syllabus revision was carried out during the last five years.** 1.1.2.1. **Number of all Programmes offered by the institution during the last five years.** HEI Input : 17 1.1.2.2. **How many Programmes were revised out of total number of Programmes offered during the last five years** HEI Input : 16	Provide Approved Minutes of relevant Academic Council/BOS meetings highlighting the specific agenda item regarding the metric from the competent authority: (university/autonomous bodies)

Supporting Documents:

1. **Minutes of the relevant Academic Council, emphasizing the topic of syllabus revision.**
2. **Minutes of the BOS Meetings of Degree-Awarding Departments addressing the specific emphasis on syllabus revision**

Minutes
of
Academic Council

ACADEMIC COUNCIL

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA-700107

MINUTES OF THE TWENTY NINTH MEETING OF THE ACADEMIC COUNCIL HELD ON MONDAY, 21st JUNE, 2021 AT 11:00 AM (Online meeting in Zoom Platform)

Members Present:

• Prof. (Dr.) Basab Chaudhuri, Principal	Chairman
• Prof. (Dr.) K. K. Chaudhuri, Nominee BOG	Member
• Prof. (Dr.) Chandan Guha, Nominee BOG	Member
• Prof. (Dr.) Kesab Bhattacharya, Representative MAKAUT	Member
• Prof. (Dr.) Utpal Roy, Nominee MAKAUT	Member
• Prof. (Dr.) N P Nayak, HOD (Phy) and COE	Member
• Prof. (Dr.) Madhurima Chattopadhyay, HOD (AEIE)	Member
• Prof. (Dr.) Souvik Basu, HOD (CA)	Member
• Prof. (Dr.) Tapas Sadhu, HOD (CE)	Member
• Prof. (Dr.) Subhashis Majumder, HOD (CSE) & Dean (UG)	Member
• Prof. (Dr.) Prabir Banerjee, HOD (ECE)	Member
• Prof. (Dr.) Saibal Dutta, HOD (EE)	Member
• Prof. (Dr.) Suparna Chakraborty, HOD (Hum.)	Member
• Prof. (Dr.) Siuli Roy, HOD (IT)	Member
• Prof. (Dr.) Sandip Chatterjee, HOD (Math.)	Member
• Prof. (Dr.) Sukanta Sarkar, HOD (ME)	Member
• Prof. (Dr.) Srabanti Basu, HOD (BT)	Member
• Prof. Krishanu Datta, Faculty Representative	Member
• Prof. (Dr.) Santanu Ghorai, Faculty Representative	Member
• Prof. (Dr.) Atanu Kundu, Faculty Representative and Deputy Controller of Examinations	Member
• Prof. (Dr.) Arup Jyoti Bhowal, Faculty Representative	Member
• Mr. Arvind Srivastava, Joint Registrar	Special Invitee
• Prof. (Dr.) S K Barua, Registrar	Special Invitee
• Prof. (Dr.) Pinaki Bhattacharya, Head (Research)	Special Invitee
• Mr. Kaushik Bhattacharya	Special Invitee
• Prof. (Dr.) Dinabandhu Bhandari, Member Secretary	Member

Members Absent:

• Prof. (Dr.) Chandan Mazumder, Nominee BOG	Member
• Prof. (Dr.) Subhashis Datta, Nominee MAKAUT	Member
• Prof. (Dr.) Jayati Datta, HOD (Chem)	Member
• Prof. (Dr.) Sulagna Chatterjee, HOD (ChE)	Member
• Mr. Ivan Saha, Nominee BOG	Member

After noting the inability of the members to attend, as mentioned above, the meeting started.

Welcome by the Chairman
The Chairman welcomed all members to this twenty ninth Academic Council meeting.

Agenda No. 1: Confirmation of the Minutes of the last Academic Council Meeting held on 19-Apr-2021

The minutes of the twenty eighth meeting of the Academic Council held on 19-Apr-2021 was confirmed and adopted.

Agenda No. 2: Consideration of the syllabi for B Tech, M Tech and MCA programmes.

Upon approval of the BOS of respective departments, the syllabi (mentioned below) were communicated on 02-Jun-2021 to the AC members for their review and comments.

- Complete course structures and 4th Year (7th and 8th Semester) detailed syllabus of AEIE, BT, CE, CSBS, CSE, ChE, ECE, EE, IT and ME.
- Complete course structures and 3rd Year (5th and 6th Semester) detailed syllabus of 3-year MCA course.
- Complete course structures and 2nd Year (3rd and 4th Semester) detailed syllabus of 2-year MCA course.
- Revised M Tech syllabus for RE (Renewable Energy, ECE and VLSI).

After due deliberation, the AC members in principle approved the syllabi with following observations. The members have authorized the Chairman to finalize the syllabi with the consent of the internal members and HODs. The respective departments are advised to incorporate the comments in the final versions of the syllabi before uploading the same in the institute's website.

Observations:

- Variable number of lectures allotted for the papers having 3 credit points in the B Tech courses.
- Proposal to reconsider the allocation of credit points for project and comprehensive viva in the 8th Semester of all B Tech courses.
- Suggestion to offer Advanced Operating System as a core subject instead of an elective paper offered by CSE.
- Suggestion to include Heisenberg Uncertainty Principle and Basics of Quantum Cryptography in the Quantum Computing course offered in CSE 4th year.

Agenda No. 3: Consideration of the results of B Tech 7th Semester Examination of the academic year 2020-2021.

The analysis of the results of B Tech 7th semester examination of the academic year 2020-2021 was presented by the Chairman before the members of the council. After due deliberations, Prof. Kesab Bhattacharya proposed to approve the results and Prof. Utpal Roy seconded it, and finally the results were approved by the Council.

Agenda No. 4: Miscellaneous

1. With regard to notification (given below) on 13-May-2021 to all AC members, The online practical classes and examinations are in progress.

> "This is for your information that due to the current situation of COVID pandemic and keeping in mind the interest of the students, the college authority has decided to make the following changes related to practical classes and examinations. This is in line with the decision taken in the 27th AC meeting held on 08-Feb-2021 under item 3 (The minutes of the meeting are attached herewith).
>
> Practical classes will be carried out online for all BTech, MTech and MCA students for both even and odd semesters. Thereafter, online practical examinations will be arranged.
>
> The results of the backlog examinations (theory and practical) for the current B Tech 4th year students and students appearing in the final semester in the year 2020 or before will be published at an early date."

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

Prof. (Dr.) Basab Chaudhuri
Chairman
Academic Council

Prof. (Dr.) Dinabandhu Bhandari
Member Secretary
Academic Council

ACADEMIC COUNCIL

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA-700107

MINUTES OF THE NINETEENTH MEETING OF THE ACADEMIC COUNCIL HELD ON WEDNESDAY, 25th SEPTEMBER, 2019 AT 12:30 PM AT "A" BUILDING CONFERENCE ROOM

Members Present:

1.	Prof. (Dr.) Pranay Chaudhuri	Chairman
2.	Prof. (Dr.) K. K. Chaudhuri, Nominee BOG	Member
3.	Prof. (Dr.) Srabanti Basu, HOD (BT)	Member
4.	Prof. (Dr.) Souvik Basu, HOD (CA)	Member
5.	Prof. (Dr.) Tapas Sadhu, HOD (CE)	Member
6.	Prof. (Dr.) Sulagna Chatterjee, HOD (ChE)	Member
7.	Prof. (Dr.) Jayati Datta, HOD (Chem)	Member
8.	Prof. (Dr.) Subhashis Majumder, HOD (CSE) & Dean (UG)	Member
9.	Prof. (Dr.) Prabir Banerjee, HOD (ECE)	Member
10.	Prof. (Dr.) Saibal Dutta, HOD (EE)	Member
11.	Prof. (Dr.) Tapan Chakrabarti, HOD (IT)	Member
12.	Prof. (Dr.) Sandip Chatterjee, HOD (Math.)	Member
13.	Prof. (Dr.) Sukanta Sarkar, HOD (ME)	Member
14.	Prof. (Dr.) N P Nayak, HOD (Phy) and COE	Member
15.	Prof. Krishanu Datta, Faculty Representative	Member
16.	Prof. (Dr.) Santanu Ghorai, Faculty Representative	Member
17.	Prof. (Dr.) Atanu Kundu, Faculty Representative and Deputy Controller of Examinations	Member
18.	Prof. (Dr.) Arup Jyoti Bhowal, Faculty Representative	Member
19.	Prof. (Dr.) Pinaki Bhattacharya, Head (Research)	
20.	Prof. (Dr.) Dinabandhu Bhandari, Member Secretary	Member

Leave of Absence Granted:

1. Prof. (Dr.) Chandan Mazumder, Nominee BOG
2. Prof. (Dr.) Debjani Ganguly, Nominee MAKAUT
3. Prof. (Dr.) Chandan Guha, Nominee BOG
4. Prof. (Dr.) S K Barua, Registrar
5. Prof. (Dr.) Madhurima Chattopadhyay, HOD (AEIE)
6. Prof. (Dr.) Suparna Chakraborty, HOD (Hum.)
7. Mr. Arvind Srivastava, Joint Registrar
8. Prof. (Dr.) Siddhartha Mukherjee, Representative MAKAUT
9. Prof. (Dr.) Nabendu Chaki, Nominee MAKAUT
10. Mr. Ivan Saha, Nominee BOG

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

Welcome by the Chairman

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

Agenda No. 1: Confirmation of the Minutes of the last Academic Council Meeting held on 08-May-2019

The minutes of the eighteenth meeting of the Academic Council held on 10-Jul-2019 were confirmed and adopted.

Agenda No. 2: Action Taken Report for the last meeting held on 10-Jul-2019. (Ratification of MCA syllabus)

A brief background was provided by the Chairman with reference to the Agenda No. 2 of 18th AC meeting. The suggestions made by the AC members have been incorporated in the MCA syllabus.

- Dean, UG and HOD, CA have revised the course structure considering subjects and credit allocations as suggested by the Academic Council.
- Design and Analysis of Algorithms has been included in 3rd Semester.

After due ratification, the Council approved the detailed syllabus.

Agenda No. 3: To consider the Annual Quality Assurance Report (AQAR) for the year 2018-2019.

The AQAR for the year 2018-19 was presented to the members of the Academic Council. After due deliberations, the report was approved by the Council.

Agenda No. 4: To consider a proposal for reconstitution of IQAC

The Chairman proposed to reconstitute the IQAC since some of the members are not available at present. Accordingly, the names of the following members have been proposed and approved for IQAC.

Sl. No.	Name	
01	Prof. (Dr.) Pranay Chaudhuri, Principal	Chairman
02	Mr. P K Agarwal, CEO, KBT	Permanent Invitee
03	Dr. Sujit Kumar Barua, Registrar	Member
04	Mr. Arvind Srivastava, Joint Registrar	Member
05	Mr. Manoj Saraogi, CFO	Member
06	Mr. Santosh Kumar Ray, DGM	Member
07	Prof. (Dr.) Subhashis Majumder, Dean (UG) and HOD (CSE)	Member
08	Prof. (Dr.) N P Nayak, COE and HOD (Physics)	Member
09	Prof. (Dr.) Prabir Banerjee, HOD (ECE)	Member
10	Prof. (Dr.) Pinaki Bhattacharya, Head (Research)	Member
11	Prof. (Dr.) Sukanta Sarkar, HOD, ME	Member
12	Mr. Debapratim Chakraborty, Student (CSE)	Member
13	Prof. (Dr.) Dinabandhu Bhandari, Professor (CSE), Coordinator	Member
14	Mr. Sarbajit Das, Alumni (AEIE-2007 Graduate), Founder and CEO, Sun Dew Solutions	Member
15	Mr. Hirak Ghosh, GM (HR), Paharpur Cooling Towers Ltd.	Member
16	Mr. P Naha, GM (HR), Keventer Agro Ltd.	Member

Agenda No. 5: To consider a proposal for the introduction of 2 new undergraduate courses (B. Tech. in Computer Science and Business Systems, and Bachelor of Design).

The Chairman provided a brief background of the proposal for the introduction of two new undergraduate courses (B. Tech. in Computer Science and Business Systems, and Bachelor of Design). The members of the council appreciated and accepted the initiative.

Agenda No. 6: Miscellaneous

None.

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. (Dr.) Dinabandhu Bhandari
Member Secretary
Academic Council

ACADEMIC COUNCIL

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA-700107

MINUTES OF THE EIGHTEENTH MEETING OF THE ACADEMIC COUNCIL HELD ON WEDNESDAY, 10th JULY, 2019 AT 11:00 AM AT "A" BUILDING CONFERENCE ROOM

Members Present:

1.	Prof. (Dr.) Pranay Chaudhuri	Chairman
2.	Prof. (Dr.) Chandan Guha, Nominee BOG	Member
3.	Prof. (Dr.) K. K. Chaudhuri, Nominee BOG	Member
4.	Prof. (Dr.) S K Barua, Registrar	Member
5.	Prof. (Dr.) Madhurima Chattopadhyay, HOD (AEIE)	Member
6.	Prof. (Dr.) Srabanti Basu, HOD (BT)	Member
7.	Prof. (Dr.) Souvik Basu, HOD (CA)	Member
8.	Prof. (Dr.) Tapas Sadhu, HOD (CE)	Member
9.	Prof. (Dr.) Sulagna Chatterjee, HOD (ChE)	Member
10.	Prof. (Dr.) Jayati Datta, HOD (Chem)	Member
11.	Prof. (Dr.) Subhashis Majumder, HOD (CSE) & Dean (UG)	Member
12.	Prof. (Dr.) Prabir Banerjee, HOD (ECE)	Member
13.	Prof. (Dr.) Saibal Dutta, HOD (EE)	Member
14.	Prof. (Dr.) Suparna Chakraborty, HOD (Hum.)	Member
15.	Prof. (Dr.) Tapan Chakrabarti, HOD (IT)	Member
16.	Prof. (Dr.) Sandip Chatterjee, HOD (Math.)	Member
17.	Prof. (Dr.) Sukanta Sarkar, HOD (ME)	Member
18.	Prof. (Dr.) N P Nayak, HOD (Phy) and COE	Member
19.	Prof. Krishanu Datta, Faculty Representative	Member
20.	Prof. (Dr.) Santanu Ghorai, Faculty Representative	Member
21.	Prof. (Dr.) Atanu Kundu, Faculty Representative and Deputy Controller of Examinations	Member
22.	Prof. (Dr.) Arup Jyoti Bhowal, Faculty Representative	Member
23.	Mr. Arvind Srivastava, Joint Registrar	Member
24.	Prof. (Dr.) Dinabandhu Bhandari, Member Secretary	Member

Leave of Absence Granted:

1. Prof. (Dr.) Chandan Mazumder, Nominee BOG
2. Prof. (Dr.) Debjani Ganguly, Nominee MAKAUT
3. Prof. (Dr.) Siddhartha Mukherjee, Representative MAKAUT
4. Prof. (Dr.) Nabendu Chaki, Nominee MAKAUT
5. Mr. Ivan Saha, Nominee BOG
6. Prof. (Dr.) Pinaki Bhattacharya, Head (Research)

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

Welcome by the Chairman

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

Agenda No. 1: Confirmation of the Minutes of the last Academic Council Meeting held on 08-May-2019

The minutes of the seventeenth meeting of the Academic Council held on 08-May-2019 were confirmed and adopted.

Agenda No. 2: Consideration of the revised syllabus for MCA programme

The curricular structure of the MCA programme and detailed syllabus for 1st year of the programme were discussed by the council members in light of distribution of subjects and credits in comparison with the suggestions from AICTE and MAKAUT. AC members suggested the followings:

1. Dean, UG and HOD, CA to review the course structure and revise the same considering subjects and credit allocation.
2. Chairman also suggested to consider "Design and Analysis of Algorithms" as a compulsory subject.

Agenda No. 3: Re-constitution of the Board of Studies (BOS) of all degree awarding departments.

The term of the existing BOS of all degree awarding departments (except CA) have been reconstituted with the following experts as Academic Council Nominees:

1	AEIE	Academic Council Nominees	1. Prof. Sankarnarayan Patra, Dept. of IEE, JU;
			2. Prof. Sunit Kumar Sen, Dept. of Applied Physics, CU;
		Industry Representatives	Dr. Tapas Chakravarty, Principal Scientist , TCS Research & Innovation ;
		Meritorious Alumnus (AC Nominee)	Mr. Suddhasattwa Roy, Assistant manager, IOCL

2	BT	Academic Council Nominees	1.Prof. Maitreyee Dasgupta, Dept of BT, CU;
			2. Prof. Sriparna Datta, Dept. of Chemical Technology, CU;
		Industry Representatives	Dr. Dipan Chatterjee, Food Technologist and QC Manager, Krishna Chandra Dutta (Spice) Pvt Ltd
		Meritorious Alumnus (AC Nominee)	Ms Trisha Mondal, Research Scientist, TCG Life Sciences Pvt. Ltd.

3	Civil	Academic Council Nominees	1.Prof. Amalendu Ghosh, Ex. Professor Emeritus and Head, Dept. of CE, Techno India University, Kolkata and former Professor and Head of BESU;
			2.Prof. Sibapriya Mukherjee, Dept. of CE, JU
		Industry Representatives	Mr. Probal Kundu, Jt. Principal Manager, STUP Consultants Pvt. Ltd
		Meritorious Alumnus (AC Nominee)	Mr. Mitranjan Ganguli (B. Tech. – 2016 Batch)

4	ChE	Academic Council Nominees	1.Dr. Amitava Majumdar, Head of R&D and QA at Vikram Solar Kolkata
			2.Prof. Ujjaini Sarkar, Dept of ChE, JU
		Industry Representatives	Dr. Sanjib Mukhopadhyay, Technical Director and Head, Engineering, M. N. Dastur & Co (P) Ltd.
		Meritorious Alumnus (AC Nominee)	Mr. Swastik Basu, Production Engineer, IOCL, Haldia

5	CSE	Academic Council Nominees	1.Dr. Mandar Mitra, Asso Prof, CVPR Unit, ISI Kolkata
			2.Dr. Arijit Mukherjee, Sr. Scientist, Embedded Systems & Robotics Research, TCS
		Industry Representatives	Mr. Kausik Datta, Senior Manager, Mentor Graphics
		Meritorious Alumnus (AC Nominee)	Ms. Beepa Bose, Technology Consultant, PWC

6	ECE	Academic Council Nominees	1.Prof. Iti Saha Misra, ETCE Department, JU
			2.Prof. Monojit Mitra, Dept of ETC, IIEST
		Industry Representatives	Mr. Sumit Poddar, DGM, CESC
		Meritorious Alumnus (AC Nominee)	Mr. Prantik Mahajan, batch: 2006; Senior Engineer, A&MS Circuit Design at Synopsys Inc., Bangalore

7	EE	Academic Council Nominees	1.Prof. Amitava Chatterjee, Dept of EE, JU
			2.Prof. Swapan Kumar Ghoswami, Dept of EE, JU
		Industry Representatives	Mr. J. Nandy, Manager, ABB India Ltd., Kolkata
		Meritorious Alumnus (AC Nominee)	Mr. Ankit Chatterjee, M.Tech Student of IIT

8	IT	Academic Council Nominees	1.Prof. Nandini Mukhopadhyay, Dept of CSE, JU
			2.Prof. Samiran Chattopadhyay, Dept of IT, JU
		Industry Representatives	Mr. Rangan Sengupta, Senior Manager, Deloitte
		Meritorious Alumnus (AC Nominee)	Mr. Aritra Das, System Engineer, TCS

9	ME	Academic Council Nominees	1.Dr. Siddhartha Ray, Ex Director, NITTTR, Kolkata
			2.Prof. Achintya Mukhopadhyay , Dept of ME, JU
		Industry Representatives	Dr. Bimal Kumar Basak, Ex-Executive Director, The Wesman Engineering Company Ltd., Kolkata
		Meritorious Alumnus (AC Nominee)	Mr. Tanbir Mukherjee, System Engineer, TCS, Kolkata

<u>Agenda No. 4</u>: Revision of Student Evaluation Process.

As per the current Student's Handbook, The recommendation for course tests/class tests marks is "*At least two tests are to be conducted at near-identical intervals. The best performance is to be considered for the final reckoning.*" After detail deliberation, the members of Academic Council decided that the average performance instead of best would be considered for the final reckoning from academic session 2019-20. Accordingly the Student's Handbook will be updated. Moreover, it has also been decided that the same will be applicable for all the students from 2nd year onwards of all departments from the current session. The HODs are to notify the students in their respective departments about the new guidelines.

<u>Agenda No. 5</u>: Consideration of the results of Even Semester Examination 2018-2019 held in May-2019

The analysis of the results, compiled by the Controller of Examinations (CoE), was presented; also a printed booklet, titled "Result of Even Semester Examinations, 2019-20", was distributed to the members for ready reference. After due deliberations, the results for the following programmes were approved by the Council:

- ✓ **B Tech** – for all students of 1st year (2nd Semester), 2nd Year (4th Semester), 3rd Year (6th Semester) and 4th Year (8th Semester) for the streams: AEIE, BT, CE, CHE, CSE, ECE, EE, IT, and ME.
- ✓ **M Tech** – for all students of 1st Year (2nd Semester) for the streams: AEIE, BT, CSE, ECE, and VLSI (offered by ECE Department) and 2nd Year (4th Semester) for all the above streams and RE (offered by CHE Department).
- ✓ **MCA** – for all students of 1st Year (2nd Semester), 2nd Year (4th Semester) and 3rd Year (6th Semester)

Agenda No. 6: Miscellaneous

a) ***Semester examination answer scripts preservation*** - As per the suggestion of the BOG, answer scripts be preserved for 4 years for B Tech, 2 years for M Tech and 3 years for MCA.

b) ***Change in Paper Code*** - Paper code of the practical course-HMTS-1251 is to be changed to HMTS-1252. This change will be effective from the ensuing odd semester, 2019.

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. (Dr.) Dinabandhu Bhandari
Member Secretary
Academic Council

ACADEMIC COUNCIL

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA-700107

MINUTES OF THE SEVENTEENTH MEETING OF THE ACADEMIC COUNCIL HELD ON WEDNESDAY, 8th MAY, 2019 AT 11:00 AM AT "A" BUILDING CONFERENCE ROOM

Members Present:

1.	Prof. (Dr.) Pranay Chaudhuri, Principal	Chairman
2.	Prof. Debjani Ganguly, Nominee MAKAUT	Member
3.	Prof. (Dr.) Madhurima Chattopadhyay, HOD (AEIE)	Member
4.	Prof. (Dr.) Srabanti Basu, HOD (BT)	Member
5.	Prof. (Dr.) Tapas Sadhu, HOD (CE)	Member
6.	Prof. (Dr.) Sulagna Chatterjee, HOD (ChE)	Member
7.	Prof. (Dr.) Subhashis Majumder, HOD (CSE) & Dean (UG)	Member
8.	Prof. (Dr.) Prabir Banerjee, HOD (ECE)	Member
9.	Prof. (Dr.) Saibal Dutta, HOD (EE)	Member
10.	Prof. (Dr.) Suparna Chakraborty, HOD (Hum)	Member
11.	Prof. (Dr.) Tapan Chakrabarti, HOD (IT)	Member
12.	Prof. (Dr.) Sandip Chatterjee, HOD (Math)	Member
13.	Prof. (Dr.) Souvik Basu, HOD (MCA)	Member
14.	Prof. (Dr.) Sukanta Sarkar, HOD (ME)	Member
15.	Prof. (Dr.) N P Nayak, HOD (Phy) and Dean (Student Affairs)	Member
16.	Prof. Krishanu Datta, Faculty Representative	Member
17.	Prof. (Dr.) Santanu Ghorai, Faculty Representative	Member
18.	Prof. Kalarab Ray, Member Secretary and Controller of Examinations	Member

Leave of Absence Granted:

1. Prof. (Dr.) Jayati Datta, HOD (Chem)
2. Prof. Chandan Mazumdar, Nominee BOG
3. Prof. (Dr.) Chandan Guha, Nominee BOG
4. Mr. Ivan Saha, Nominee BOG
5. Prof. (Dr.) Siddhartha Mukherjee, Representative MAKAUT
6. Prof. (Dr.) Nabendu Chaki, Nominee MAKAUT

Special Invitees Present:

1. Prof. (Dr.) Dinabandhu Bhandari, Faculty Representative
2. Prof. (Dr.) S K Barua, Registrar
3. Prof. (Dr.) Atanu Kundu, Deputy Controller of Examinations

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

Welcome by the Chairman

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

PC.

Agenda No. 1: Confirmation of the Minutes of the last Academic Council Meeting held on 25-Feb-2019

The minutes of the sixteenth meeting of the Academic Council held on 25-Feb-2019 were confirmed and adopted.

Agenda No. 2: Induction of Prof. (Dr.) Dinabandhu Bhandari of CSE Department into Academic Council as Faculty Representative cum Member Secretary

The Chairman welcomed Prof. (Dr.) Dinabandhu Bhandari to the Academic Council and introduced him to the members present.

(a) It was decided that Prof. Bhandari will take over, from Prof. Kalarab Ray, the role of the Member Secretary of the Academic Council (AC), with effect from 01-Jun-2019.

(b) It was also decided that Prof. Bhandari will take over, from Prof. Kalarab Ray, the role of the Coordinator of the Internal Quality Assurance Cell (IQAC), with effect from 01-Jun-2019.

The Chairman and the members present thanked Prof. Ray for the services he has rendered to the Academic Council and the IQAC.

Agenda No. 3: Introduction of a new clause in the examination rules regarding Special Supplementary Examinations

It was decided to revise the last paragraph of Section-5.4.2.2 [Rules for Examinations] as follows (by including the underscored text below).

"*There shall be no separate Supplementary Examinations for 2nd & 3rd year B Tech, 1st year M Tech and 1st & 2nd year MCA. However, Supplementary Examinations only in respect of 1st & 2nd semester for 1st year B Tech, 3rd & 4th semester for final year M Tech, and 7th & 8th semester of final year B Tech and 5th & 6th semester of final year MCA, for Theory as well as for Practical and Sessional papers, shall be held within one month from the date of publication of results.*"

Agenda No. 4: Consideration of the Detailed Syllabus for 3rd and 4th Semester for all B Tech and M Tech programmes

The curriculum, Course Structure for entire programme and Detailed Syllabus for 2nd Year (i.e., 3rd and 4th Semester), for the following programmes, were reviewed and approved by the Academic Council (subject to one final round of checking with respect to proper codes and/or names for all papers concerned) for publishing on the HIT Web-site before commencement of the Academic Session 2019-2020:

- B Tech – AEIE, BT, CE, CHE, CSE, ECE, EE, IT, and ME
- M Tech – AEIE, BT, REEN, CSE, ECE, and VLSI

Agenda No. 5: Miscellaneous

(a) MCA Programme Merging – In view of the approval received from AICTE, it is recommended that the Computer Application Centre (CAC) be renamed, with effect from 01-Jul-2019 (Academic Year 2019-2020), as Department of Computer Applications, being the 10th degree-awarding department of HIT, offering only a Post-Graduate (PG) programme (MCA).

(b) MCA Degree Certificate – The MCA students graduating in 2019 will receive their graduation certificates under HIT with a footnote as "*formerly CAC, HIT*".

(c) MCA Board of Studies (BOS) Reconstitution – The term of the existing BOS has expired and a new one has to be constituted with the following experts as Academic Council Nominees:

1) External Expert – Prof. Samiran Chattopadhyay, Professor, Department of Information Technology, Jadavpur University
2) External Expert – Prof. Sipra Das Bit, Professor, Department of Computer Science & Technology, IIEST, Shibpur
3) Industry Representative – Mr. Udayan Kar, Senior Manager, Ericsson Global Services Pvt. Ltd.
4) Alumnus – Mr. Anish Paul, Software Engineer, Cerner India Healthcare Services Pvt. Ltd.

(d) Semester Examination Answer Scripts Preservation – After a round of deliberations by the council members, it was decided to preserve the answer scripts for not more than four years.

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. Kalyab Ray
Member Secretary
Academic Council

ACADEMIC COUNCIL

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA-700107

MINUTES OF THE SIXTEENTH MEETING OF THE ACADEMIC COUNCIL HELD ON MONDAY, 25th FEBRUARY, 2019 AT 12:00 PM AT "A" BUILDING CONFERENCE ROOM

Members Present:

1.	Prof. (Dr.) Pranay Chaudhuri	Chairman
2.	Prof. Chandan Mazumdar, Nominee BOG	Member
3.	Prof. Debjani Ganguly, Nominee MAKAUT	Member
4.	Mr. Ivan Saha, Nominee BOG	Member
5.	Prof. (Dr.) Madhurima Chattopadhyay, HOD (AEIE)	Member
6.	Prof. (Dr.) Tapas Sadhu, HOD (CE)	Member
7.	Prof. (Dr.) Sulagna Chatterjee, HOD (ChE)	Member
8.	Prof. (Dr.) Subhashis Majumder, HOD (CSE) & Dean (UG)	Member
9.	Prof. (Dr.) Saibal Dutta, HOD (EE)	Member
10.	Prof. (Dr.) Sandip Chatterjee, HOD (Math.)	Member
11.	Prof. (Dr.) Souvik Basu, HOD (MCA)	Member
12.	Prof. (Dr.) Sukanta Sarkar, HOD (ME)	Member
13.	Prof. (Dr.) N P Nayak, HOD (Phy) and Dean (Student Affairs)	Member
14.	Prof. Krishanu Datta, Faculty Representative	Member
15.	Prof. (Dr.) Santanu Ghorai, Faculty Representative	Member
16.	Prof. (Dr.) Nirman Ganguly, Faculty Representative and Deputy Controller of Examinations	Member
17.	Prof. Kalarab Ray, Member Secretary and Controller of Examinations	Member

Leave of Absence Granted:

1. Prof. (Dr.) Srabanti Basu, HOD (BT)
2. Prof. (Dr.) Jayati Datta, HOD (Chem)
3. Prof. (Dr.) Prabir Banerjee, HOD (ECE)
4. Prof. (Dr.) Suparna Chakraborty, HOD (Hum.)
5. Prof. (Dr.) Tapan Chakrabarti, HOD (IT)
6. Prof. (Dr.) Chandan Guha, Nominee BOG
7. Prof. (Dr.) Siddhartha Mukherjee, Representative MAKAUT
8. Prof. (Dr.) Nabendu Chaki, Nominee MAKAUT

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

Welcome by the Chairman

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

Agenda No. 1: Confirmation of the Minutes of the last Academic Council Meeting held on 31-Jul-2018

The minutes of the fifteenth meeting of the Academic Council held on 31-Jul-2018 were confirmed and adopted.

Agenda No. 2: Consideration of the detailed syllabus for M Tech CSE 2nd Semester programme

A brief background was provided by the Chairman, with reference to the e-mail (containing the above detailed syllabus) circulated amongst the Academic Council Members on 04-Feb-2019. A summary of approval on this resolution by circulation was presented. After due ratification, the Council approved the detailed syllabus.

Agenda No. 3: Consideration of the results of Odd Semester Examinations 2018 held in Dec-2018

The analysis of the results, compiled by the Controller of Examinations (CoE), was presented in PowerPoint form; also a printed booklet, titled "Result of Odd Semester Examinations, 2018-19", was distributed to all members for ready reference. After due deliberations, the results for the following programmes were approved by the Council:

- ✓ **B Tech** – for all students of 1st Year (1st Semester), 2nd Year (3rd Semester), 3rd Year (5th Semester) and 4th Year (7th Semester) for following streams: AEIE, BT, CE, CHE, CSE, ECE, EE, IT, and ME
- ✓ **M Tech** – for all students of 1st Year (1st Semester) for following streams: AEIE, BT, CSE, ECE, and VLSI (offered by ECE Department); for all students 2nd Year (3rd Semester) for following streams: AEIE, BT, CSE, ECE, RE (offered by CHE Department), and VLSI (offered by ECE Department)
- ✓ **MCA** – for all students of 1st Year (1st Semester), 2nd Year (3rd Semester) and 3rd Year (5th Semester)

Agenda No. 4: Miscellaneous

None

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

ACADEMIC COUNCIL

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA-700107

MINUTES OF THE FOURTEENTH MEETING OF THE ACADEMIC COUNCIL HELD ON MONDAY, 9th JULY, 2018 AT 11:00 AM AT "A" BUILDING CONFERENCE ROOM

Members Present:

1.	Prof. (Dr.) Pranay Chaudhuri	Chairman
2.	Prof. (Dr.) Madhurima Chattopadhyay, HOD (AEIE)	Member
3.	Prof. (Dr.) Srabanti Basu, HOD (BT)	Member
4.	Prof. (Dr.) Tapas Sadhu, HOD (CE)	Member
5.	Prof. (Dr.) Sulagna Chatterjee, HOD (ChE)	Member
6.	Prof. (Dr.) Jayati Datta, HOD (Chem)	Member
7.	Prof. (Dr.) Subhashis Majumder, HOD (CSE) & Dean (UG)	Member
8.	Prof. (Dr.) Prabir Banerjee, HOD (ECE)	Member
9.	Prof. (Dr.) Saibal Dutta, HOD (EE)	Member
10.	Prof. (Dr.) Suparna Chakraborty, HOD (Hum.)	Member
11.	Prof. (Dr.) Tapan Chakrabarti, HOD (IT)	Member
12.	Prof. (Dr.) Sandip Chatterjee, HOD (Math.)	Member
13.	Prof. (Dr.) Sukanta Sarkar, HOD (ME)	Member
14.	Prof. (Dr.) N P Nayak, HOD (Phy) and Dean (Student Affairs)	Member
15.	Prof. (Dr.) Siuli Roy, HOD (MCA)	Member
16.	Prof. Krishanu Datta, Faculty Representative	Member
17.	Prof. (Dr.) Santanu Ghorai, Faculty Representative	Member
18.	Prof. (Dr.) Nirman Ganguly, Faculty Representative	Member
19.	Prof. Kalarab Ray, Member Secretary and Deputy Controller of Examinations	Member

Leave of Absence Granted:

1. Prof. Chandan Mazumdar, Nominee BOG
2. Prof. (Dr.) Chandan Guha, Nominee BOG
3. Mr. Ivan Saha, Nominee BOG
4. Prof. B B Paira, Nominee BOG
5. Prof. (Dr.) Siddhartha Mukherjee, Representative MAKAUT
6. Prof. Debjani Ganguly, Nominee MAKAUT
7. Prof. (Dr.) Nabendu Chaki, Nominee MAKAUT

Special Invitees Present:

1. Prof. (Dr.) S K Barua, Registrar
2. Prof. B R Saha, Controller of Examinations

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

Welcome by the Chairman

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

Agenda No. 1: Confirmation of the Minutes of the last Academic Council Meeting held on 09-Feb-2018

The minutes of the thirteenth meeting of the Academic Council held on 09-Feb-2018 were confirmed and adopted.

Agenda No. 2: Action Taken Report for the last meeting held on 09-Feb-2018

a) The proposal for "Providing for Facility for Semester-long Project Work for External Students", introducing a facility for semester-long project work at HIT for external students against (a) submission of a "No Objection Certificate" (in a format specified by HIT) from the parent institute, and (b) payment of a non-refundable fee of Rs. 15,000/- to HIT, has been finalized by the Registrar, by incorporating the necessary few more operational details [reference point-2(a) of Minutes of 13th AC Meeting held on 09-Feb-2018].

b) The name of Mr. Sanjib Mukhopadhyay, Technical Director & Head, Engineering, M N Dastur & Co (P) Ltd, has duly been included as the Industry Representative in BOS of Chemical Engineering Department, in place of Mr. Siddhartha Sengupta (who has resigned from Vikram Solar) [reference point-5(b) of Minutes of 13th AC Meeting held on 09-Feb-2018].

Agenda No. 3: Consideration of a Proposal for providing Facility for Semester-long Project Work for External Students

The finalized proposal was shared with the Council members and was duly approved [reference point-2(a) above].

Agenda No. 4: Consideration of the recommendations of the Boards of Studies (BoS) of the following degree-awarding departments regarding course structures for the various B Tech and M Tech programmes and detailed syllabi for 1st Year: Applied Electronics and Instrumentation Engineering (AEIE), Biotechnology (BT), Civil Engineering (CE), Chemical Engineering (CHE), Computer Science and Engineering (CSE), Electronics and Communication Engineering (ECE), Electrical Engineering (EE), Information Technology (IT), and Mechanical Engineering (ME)

The curricular structures for the various B Tech and M Tech programmes and detailed syllabi for 1st Year of these programmes were discussed by the Council members in light of distribution of Credits across various Course Types for all the above B Tech programmes, in comparison with the suggestions from AICTE.

a) It was decided to include the following table as part of the Course Structure for all B Tech programmes.

Sl. No.	Course Type	AICTE Suggested	AEIE	BIOT	CIVL	CHEN	CSEN	ECEN	ELEC	INFO	MECH
1.	Humanities and Social Sciences including Management Courses	12	12	12	12	12	12	12	12	12	12
2.	Basic Science Courses	25	23	26.5	21	22	23	26	23	23	27
3.	Engineering Science Courses including Workshop, Drawing, Basics of Electrical / Mechanical / Computer, etc.	24	27	27.5	26	27	30	26	29	28	23
4.	Professional Core Courses	48	54	49	57	55	51	52	52	53	51.5
5.	Professional Elective Courses relevant to chosen Specialization / Branch	18	15	16	15	15	15	15	15	15	17.5
6.	Open Subjects – Electives from other Technical and/or Emerging Subjects	18	12	12	12	12	12	12	12	12	12
7.	Project Work, Seminar and Internship in industry or elsewhere	15	17	17	17	17	17	17	17	17	17
8.	Mandatory Courses (Non-credit) [Environmental Sciences, Induction Program, Indian Constitution, Essence of Indian Traditional Knowledge]	0	0	0	0	0	0	0	0	0	0
	Total	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**	**160**
9	Honours Courses	20	20	20	20	20	20	20	20	20	20
	Grand Total	**180**	**180**	**180**	**180**	**180**	**180**	**180**	**180**	**180**	**180**

b) It was decided to include, in the Course Structure for every B Tech programme, a Semester-wise Honours Credit Chart, together with a Total Honours Credit (20), as shown below.

Honours Credit Chart

Sl. No.	Semester	Paper Code	Course Title	Contact Hours / Week			Credit Points
				L	T	P	
	1st						
	2nd						
	3rd						
	4th						
	5th						
	6th						
	7th						
	8th						
	Total						20

Definition of Credit (as per AICTE):

- 1 Hour Lecture (L) per Week = 1 Credit
- 1 Hour Tutorial (T) per Week = 1 Credit
- 1 Hour Practical (P) per Week = 0.5 Credits
- 2 Hours Practical (Lab) per Week = 1 Credit

Range of Credits (as per AICTE):

- ✓ A total of 160 credits will be necessary for a student to be eligible to get B Tech degree.
- ✓ A student will be eligible to get B Tech degree with Honours if he/she completes an additional 20 credits. These could be acquired through various Honours Courses offered by the respective departments.
- ✓ A part or all of the above additional credits may also be acquired through MOOCs. Any student completing any course through MOOC will have to submit an appropriate certificate to earn the corresponding credit.
- ✓ For any additional information, the student may contact the concerned HODs.

c) It was decided that:
   1) Honours Credits will not be considered for DGPA computation.
   2) Only "Pass" or "Fail" will be mentioned in Grade Card for all Mandatory Non-credit Courses as well as for any MOOC.
   3) Mandatory Non-credit Courses will be evaluated like all other courses being offered by the respective departments.

After due deliberations, the curricular structures for the various B Tech and M Tech programmes, and the detailed syllabi for 1st Year of these programmes were approved by the Council, subject to a few minor changes (with respect to use of uniform paper codes, rationalised paper names, proper classification / grouping of papers, and inclusion of any missing Course Objectives, and/or Course Outcomes for any paper).

Agenda No. 5: Consideration of the results of Even Semester Examinations 2018 held in May-Jun-2018 for the following: B Tech 2nd Semester, B Tech 8th Semester, and M Tech 4th Semester

The analysis of the results, compiled by the Controller of Examinations (CoE), was presented in PowerPoint form; also a printed booklet, titled "Result of 2nd Semester & 8th Semester B. Tech and 4th Semester M. Tech Examinations, 2018", was distributed to all members for ready reference. After due deliberations, the results for the following programmes were approved by the Council:

- ✓ **B Tech** – for all students of 1st Year (2nd Semester), and 4th Year (8th Semester) for following streams: AEIE, BT, CE, CHE, CSE, ECE, EE, IT, and ME
- ✓ **M Tech** – for all students of 2nd Year (4th Semester) for following streams: AEIE, BT, CSE, ECE, RE (offered by CHE Department), and VLSI (offered by ECE Department)

Agenda No. 6: Miscellaneous

None

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

ACADEMIC COUNCIL

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA-700107

MINUTES OF THE ELEVENTH MEETING OF THE ACADEMIC COUNCIL HELD ON TUESDAY, 13th JUNE, 2017 AT 11:00 AM AT "A" BUILDING CONFERENCE ROOM

Members Present:

1.	Prof. (Dr.) Pranay Chaudhuri	Chairman
2.	Prof. (Dr.) Madhurima Chattopadhyay, HOD (AEIE)	Member
3.	Prof. (Dr.) Srabanti Basu, HOD (BT)	Member
4.	Prof. (Dr.) Sulagna Chatterjee, HOD (ChE)	Member
5.	Prof. (Dr.) Tapas Sadhu, HOD (CE)	Member
6.	Prof. (Dr.) Subhashis Majumder, HOD (CSE) & Dean (UG)	Member
7.	Prof. (Dr.) Sudipta Mitra, DC (EE)	Member
8.	Prof. (Dr.) Prabir Banerjee, HOD (ECE)	Member
9.	Prof. (Dr.) Suparna Chakraborty, HOD (Hum.)	Member
10.	Prof. (Dr.) Tapan Chakrabarti, HOD (IT)	Member
11.	Prof. (Dr.) Sandip Chatterjee, HOD (Math.)	Member
12.	Prof. (Dr.) Sukanta Sarkar, HOD (ME)	Member
13.	Prof. (Dr.) N P Nayak, HOD (Phy) and Dean (Student Affairs)	Member
14.	Prof. (Dr.) Siuli Roy, HOD (MCA)	Member
15.	Prof. (Dr.) Siddhartha Mukherjee, Representative MAKAUT	Member
16.	Prof. (Dr.) Nabendu Chaki, Nominee MAKAUT	Member
17.	Prof. Krishanu Datta, Faculty Representative	Member
18.	Prof. (Dr.) Santanu Ghorai, Faculty Representative	Member
19.	Prof. Kalarab Ray, Member Secretary	Member

Leave of Absence Granted:

1.	Prof. (Dr.) Samiran Mitra, HOD (Chem.)	Member
2.	Prof. Chandan Mazumdar, Nominee BOG	Member
3.	Prof. (Dr.) Chandan Guha, Nominee BOG	Member
4.	Mr. Ivan Saha, Nominee BOG	Member
5.	Prof. B B Paira, Nominee BOG	Member
6.	Prof. Debjani Ganguly, Nominee MAKAUT	Member
7.	Prof. (Dr.) Nirman Ganguly, Faculty Representative	Member

Special Invitees Present:

1. Prof. (Dr.) Sambhunath Biswas, Dy. Director
2. Prof. B R Saha, Registrar
3. Prof. (Dr.) Siddhartha Ray, Controller of Examinations
4. Mr. Arvind Srivastava, Joint Registrar

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

Welcome by the Chairman

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

A. A special welcome was accord by the Chairman to the following new members joining the Academic Council.

- BOG Nominees:
  1. Prof. Chandan Guha, Dept. of Chemical Engineering, Jadavpur University (JU)
  2. Prof. Chandan Mazumdar, Dept. of Computer Science & Engineering, JU
- MAKAUT Nominees
  1. Prof. Nabendu Chaki, Dept. of Computer Science & Engineering, University of Calcutta (CU)
  2. Prof. Debjani Ganguly, Dept. of Electrical Engineering, Associate Dean – Administrative Affairs, Indian Institute of Engineering Science & Technology (IIEST), Shibpur, Howrah
  3. Prof. Siddhartha Mukherjee, Dept. of Metallurgical & Material Engineering, JU

B. The Chairman then thanked the following outgoing members of the Academic Council for their valuable contributions and support.

1. Prof. (Dr.) A M Ghosh, Nominee BOG
2. Prof. Manoj Kumar Mitra, Nominee BOG
3. Prof. (Dr.) Prasid Syam, Nominee MAKAUT (WBUT)
4. Prof. (Dr.) Raja Datta, Nominee MAKAUT (WBUT)
5. Dr. Syed Rafikul Islam, Nominee MAKAUT (WBUT)

Agenda No. 1: Confirmation of the Minutes of the last Academic Council Meeting held on 14-Feb-2017

The minutes of the tenth meeting of the Academic Council held on 14-Feb-2017 were confirmed and adopted.

Agenda No. 2: Action Taken Report for the last meeting held on 14-Feb-2017 (regarding informing parents of students over SMS about publication of semester examination results as per Agenda No. 3)

The following action has been taken.

> *"SMS were sent to all parents, having valid mobile numbers registered with the institute, after publication of semester examination results of Even Semester 2016."*

Agenda No. 3: Consideration of the recommendations of the Boards of Studies of the Departments of Applied Electronics and Instrumentation Engineering, Biotechnology, Civil Engineering, Chemical Engineering, Computer Science and Engineering, Electronics and Communication Engineering, Electrical Engineering, Information Technology and Mechanical Engineering, regarding curricula and syllabi for B Tech 4th Year as well as for MCA 2nd Year

The Chairman briefly explained, to the new members, the process followed by the departments and the council for revision, review and approval of the curriculum.

The curricular structures for B Tech 4th Year and MCA 2nd Year programmes were then presented, one-by-one, by the respective heads, and discussed by the members.

After due deliberations, the curricular structures and detailed syllabi, both for B Tech 4th Year and for MCA 2nd Year were approved by the Council, subject to a few minor changes (with respect to use of uniform paper codes, rationalised paper names, and grouping of papers under Practical and Sessional papers), to be taken care of through a meeting between the Dean (UG) and all the HODs within the next two weeks, as suggested by the Chairman.

Agenda No. 4: Re-constitution of the Academic Council, including BOG Nominees and MAKAUT Nominees

Refer to the sub-sections [A] and [B] of **"Welcome by the Chairman"** above.

Agenda No. 5: Miscellaneous

The Chairman announced the proposed names of (a) two Academic Council Nominees, and (b) one Industry Representatives for respective BOS for each of the nine departments conducting B Tech programmes. He also mentioned that the existing BOS, formed one year ago, for MCA programme will however continue.

Re-constitution of BOS: AC Nominees and Industry Representatives

Sl.	Department / Center	Academic Council Nominees	Industry Representatives
01	AEIE	Prof. (Dr.) Rajib Bandyopadhyay Professor, Dept. of IEE, JU; Prof. (Dr.) Sunit Kumar Sen Professor, Dept. of Applied Physics, CU;	Mr. Sugata Bandyopadhyay, Senior General Manager, TCEL;
02	Biotech	Dr Maitreyee Dasgupta, Professor, Coordinator DBT-CU-IPLS, Department of Biochemistry, CU; Dr Sriparna Datta, Professor, Department of Chemical Technology, CU;	Dr Ambika Charan Banerjee, Corporate Advisor (R&D), East India Pharmaceutical Works Ltd.;
03	Civil	Prof. (Dr.) Amalendu Ghosh, Professor Emeritus and Head, Dept. of Civil Engg., Dean Engg, Architecture & Basic Sciences, Techno India University, Former Professor of IIEST, Shibpur; Prof. (Dr.) Sibapriya Mukherjee, Professor and Former HOD, Dept. of Civil Engg., JU;	Dr. Abhijit Dasgupta, Joint Managing Director, M N Dastur Pvt. Ltd.;

Re-constitution of BOS: AC Nominees and Industry Representatives (contd.)

Sl.	Department / Center	Academic Council Nominees	Industry Representatives
04	Chemical	Prof. Shampa Chakraborty, HOD, Department of Chemical Engg., CU; Mr. Dipak Pahari, Managing Director, NRGTech Pvt. Ltd.;	Mr. Siddhartha Sengupta, President Engineering, Vikram Solar ;
05	CSE	Dr. Subhamoy Maitra, Professor, Applied Statistics Unit, ISI-Kolkata; Dr. Arpan Pal, Principal Scientist and Head, Embedded Systems and Robotics, TCS Research and Innovation, Tata Consultancy Services;	Mr. Prabal Sengupta, CTO, Alumnus Software;
06	ECE	Prof. Iti Saha Misra, ETCE Department, JU; Prof. Monojit Mitra, Department of Electronics and Telecommunication, IIEST, Shibpur;	Mr. Sumit Poddar, Deputy General Manager, CESC Ltd.;

Re-constitution of BOS:
AC Nominees and Industry Representatives (contd.)

Sl.	Department / Center	Academic Council Nominees	Industry Representatives
07	Electrical	Prof. Swapan Kumar Goswami Professor, Electrical Engineering Department, JU; Prof. Amitava Chatterjee Professor, Electrical Engineering Department, JU;	Mr. Onkar Bhattacharya Manager – Strategy, CESC Ltd.;
08	Information Technology	Prof. Samir Roy, Associate Professor, Department of Computer Science & Engineering, NITTTR-Kolkata; Prof. Rajat Pal, Professor & Head, Department of Computer Science & Engineering, CU;	Mr. Rangan Sengupta, Senior Project Manager, Wipro Technologies Ltd.;
09	Mechanical	Dr. Dipankar Sanyal, Professor, ME Dept., JU; Dr. Souren Mitra, Professor, Department of Production Engineering, JU;	Dr. Bimal Kumar Basak, Former Executive Director, The Wesman Engineering Company Ltd.;

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

ACADEMIC COUNCIL - ONLINE CONSENT
22nd JULY, 2020

Agenda: Online Approval regarding detail syllabi with the course structure

A proposal was circulated on 22nd July 2020 to the members of the Academic Council for considering

- 1st year detail syllabi with the course structure for the newly introduced Computer Science and Business System (CSBS) B.Tech. course
- Modified syllabus for M.Tech. Renewable Energy and
- 2-year MCA course (approval received on 14-Aug-2020).

The above proposals were approved by the following members of the Academic Council through online.

1. Prof. (Dr.) Pranay Chaudhuri, Principal
2. Prof. (Dr.) Madhurima Chattopadhyay, HOD (AEIE)
3. Prof. (Dr.) Srabanti Basu, HOD (BT)
4. Prof. (Dr.) Souvik Basu, HOD (CA)
5. Prof. (Dr.) Tapas Sadhu, HOD, (CE)
6. Prof. (Dr.) Sulagna Chatterjee, HOD (ChE)
7. Prof. (Dr.) Jayati Datta, HOD (Chem)
8. Prof. (Dr.) Subhashis Majumder, HOD (CSE) and Dean (UG)
9. Prof. (Dr.) Prabir Banerjee, HOD (ECE)
10. Prof. (Dr.) Saibal Dutta, HOD (EE)
11. Prof. (Dr.) Suparna Chakraborty, HOD (Hum)
12. Prof. (Dr.) Siuli Roy, HOD (IT)
13. Prof. (Dr.) Sandip Chatterjee, HOD (Maths)
14. Prof. (Dr.) Sukanta Sarkar, HOD (ME)
15. Prof. (Dr.) N P Nayak, HOD (Phy) and Controller of Examinations
16. Prof. Chandan Mazumdar, Nominee BOG
17. Prof. (Dr.) Chandan Guha, Nominee BOG
18. Prof. K. K. Chaudhuri, Nominee BOG
19. Prof. Siddhartha Mukherjee, Nominee MAKAUT
20. Prof. Debjani Ganguly, Nominee MAKAUT
21. Prof. (Dr.) Nabendu Chaki, Nominee MAKAUT
22. Prof. Krishanu Datta, Faculty Representative
23. Prof. (Dr.) Santanu Ghorai, Faculty Representative
24. Prof. (Dr.) Arup Jyoti Bhowal, Faculty Representative
25. Prof. (Dr.) Atanu Kundu, Faculty Representative and Dy COE
26. Prof. (Dr.) Dinabandhu Bhandari, Member Secretary

Note: A few comments, given below, received from the members. The comments were being incorporated immediately and conveyed to the members through emails.

1. Overall revision is as per AICTE norms with minor variations.
2. In Nanotechnology syllabus some essential portion is missing like Gas Phase synthesis process and Hybrid Techniques in Chemical Engg portion.

3. The bio-tech nano portion should follow the Nanotechnology syllabus which is well designed.
4. One reference book may be added : Introduction to Nanoscience & Nanotechnology by K.K.Chattopadhyay & A.N.Banerjee PHI publication
5. Bio-Tech full structure may be provided for total analysis.
6. I found total credits of 160+20 is not followed by all departments.

Prof. (Dr.) Pranay Chaudhuri
Chairman
Academic Council

Prof. (Dr.) Dinabandhu Bhandari
Member Secretary
Academic Council

Minutes of the Meetings of the Board of Studies of the Department of Applied Electronics and Instrumentation Engineering

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY

MINUTES OF THE TENTH MEETING OF THE BOARD OF STUDIES (BOS) HELD ON THURSDAY, THE 7th MARCH, 2022, AT 2:00 PM IN THE ROOM NO. ICT102 OF THE DEPARTMENT

Members Present:

1. Prof. (Dr.) Madhurima Chattopadhyay, HOD, AEIE Dept.	Chairman
Departmental Members:	
2. Prof. (Dr.) Santanu Ghorai, AEIE Dept.	Member
3. Prof. (Dr.) Surajit Bagchi, AEIE Dept.	Member
4. Prof.(Dr.) Arabinda Kumar Pal, AEIE Dept.	Member
5. Prof. (Dr.) Soumik Das, AEIE Dept.	Member
6. Prof. Reshma Sengupta, AEIE Dept.	Member
7. Prof. Indrajit Naskar, AEIE Dept.	Member
8. Prof. Pradip Saha, AEIE Dept.	Member
9. Prof. Samiul Alam, AEIE Dept.	Member
10. Prof. Arindam Sarkar, AEIE Dept.	Member
11. Prof. Samik Chakraborty, AEIE Dept.	Member
12. Prof. Damayanti Ghosh, AEIE Dept.	Member
13. Prof. (Dr.) Anil Bag, AEIE Dept.	Member
14. Prof. Debjyoti Chowdhury, AEIE Dept.	Member

External Members:

15. Dr.Sunit Kumar Sen (Ex. Prof., Dept. of Applied Physics, Calcutta University – Academic Council nominee)
16. Dr.Sankar Narayan Patra (Associate Prof., Dept. of IEE,Jadavpur University- Academic Council nominee)
17. Dr. Tapas Chakravarty (Principal Scientist, TCS Research & Innovation- Academic Council nominee) (Joined online)
18. Mr. Suddhasattwa Roy (Manager, IOCL- Alumnus, Principal nominated)

Welcome by the Chairman

The Chairman welcomed all members to this Tenth Board of Studies meeting.

1. Confirmation of the minutes of the last meeting held on 4th March 2021.

The minutes of the eighth BOS meeting was confirmed without any modification.

2. *Approval of the Honours course for the lateral entry B.Tech. Students of AEIE department:*

As per AICTE, Lateral entry students should do at least 16 credit to get B. Tech with honours degree. As the lateral entry students join in the 3rd semester, they couldn't do the honours course provided in the 2nd semester. So, the course "Disaster Response Services and Technologies (HMTS4011)" has been proposed as honours course for the B. Tech AEIE lateral entry students to make 16 credit point in honours subjects and approved by the BOS members.

3. *Revised Course Outcomes and CO-PO, PSO mapping*

The COs of all the courses of B. Tech 7th and 8th semesters and their mapping with POs and PSOs have been approved with modification suggested by the members.

4: *CO/Course Content Revision:*

i) As decided in the 9th BOS meeting the COs/Course content of the following courses have been revised after discussion among the board members:
AEIE2103- Circuit Theory and Network Analysis
AEIE2111- Material Science and Technology
AEIE2203- Electrical and Electronic Measurements
AEIE2252- Industrial Instrumentation LAB
AEIE2253-Electrical and Electronic Measurements LAB
AEIE3131- Communication Techniques

ii) The COs of AEIE2103- Circuit Theory and Network Analysis, AEIE2111- Material Science and Technology and AEIE2203- Electrical and Electronic Measurements are redefined as given in Annexure-1. In AEIE2203, The following section is shifted from Module IV to Module II:
Q meter: basic circuit, series connection method, parallel connection method, sources of errors.

iii) In AEIE2253-Electrical and Electronic Measurements LAB, The experiment titled "Study of voltage to current and current to voltage converter circuits" included in syllabus in place of the experiment titled "Realization of data acquisition system" and the COs of the course have redefined as given in Annexure-1.

iv) In AEIE3131- Communication Techniques, the following topics are eliminated from syllabus:
Module I: VSB modulations
Module II: Offset Quadrature Phase Shift Keying (OQPSK), Minimum Shift Keying (MSK), signal constellation of MSK waveforms, error probability of MSK signal, Gaussian Minimum Shift Keying: GMSK
The revised lecture distribution in different modules is modified as follows:

Module I: 8L, Module II: 8L, Module III: 8L, Module IV: 8L
The corresponding COs of the course is redefined as given in Annexure-1.

v) In AEIE2252- Industrial Instrumentation LAB, a new experiment "Measurement of liquid level using float type sensor and ultrasonic sensor" is introduced in place of the experiment "Level measurement using capacitive/ultrasonic type level transducer". In addition to this, experiment "Measurement of kinematic viscosity using Ostwald viscometer" has been removed and experiments 2, 4, 10 and 11 have introduced in the new syllabus. All these revisions are attached in the Annexure-2 with revised experiments Vs. CO and CO-PO mappings.

vi) The board member, Dr.Sankar Narayan Patra, suggested to interchange the courses AEIE 4111: Introduction to MEMS (4th year 7th Sem) with AEIE 3133: Advanced Sensors (3rd year 5th Sem), with the reason that students must know about the MEMS before studying advanced sensors. The members have convinced and decided to send this proposal to academic council.

vii) The board members checked and approved the subject wise CO and PO attainment of last semester.

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

Prof. (Dr.) Madhurima Chattopadhyay
Chairman,
Board of Studies, Dept. of AEIE.

Annexure-1

Revised Course Outcomes of AEIE2103:

At the end of the course, student will be able to:

1. Apply knowledge of mathematics, science, and engineering to the analysis and design of electrical circuits.
2. Choose appropriate circuit laws and analysis tools to analyze the dc and ac networks.
3. Create dc and ac circuit equations using network theorems.
4. Analyze the transient and steady state responses of dc circuits.
5. Analyze two-port networks with series, parallel, cascade connections and evaluate (K5) port parameters and conditions.
6. Design and analyze LP, HP, BP, BS passive and active filters.

Revised Course Outcomes (AEIE2111):

After the completion of the course the student will be able to:

1. List the properties and describe the structure of engineering materials.
2. Analyze defects in materials and their effect on engineering properties as well as limit their use in service.
3. Use phase diagrams to predict microstructures and also to understand precipitation hardening.
4. Determine the role of fracture mechanism on material life and performance.
5. Explain the processing of engineering materials.
6. Choose suitable material in product manufacturing and system design considering engineering, economic, environmental and societal aspect.

Revised Course Outcomes (AEIE2203):

After the completion of this course students will be able to:

1. Define and understand the static and dynamic characteristics of measuring instruments.

2. Compare among the operation of measuring instruments and choose the suitable one for measurement of electrical quantities.

3. Apply appropriate method/instrument for measurement of resistance, capacitance, inductance and quality factor of coil & capacitor.

4. Recognize suitable electronic instrument for measurement of voltage, current, frequency/phase.

5. Explain the construction and working principle of cathode ray tube, oscilloscope time base, CRO probes & dual trace oscilloscope and describe their applications.

6. Analyze the working principles of digital voltmeters, digital frequency meter and digital display units.

Revised Course Outcomes of AEIE2253:

After the completion of this course students will be able to

1. Measure electrical energy and power using single phase ac energy meter and instrument transformer respectively.
2. Choose appropriate bridge for measurement of impedance.
3. Examine static and dynamic characteristics of measuring instrument.
4. Design voltage to current and current to voltage converter circuits.
5. Explain the working of voltage controlled oscillator and phase locked loop.
6. Develop analog to digital and digital to analog converter.

Revised Course Outcomes of AEIE3131:

After the completion of the course students will be able to

1. Interpret analog modulation and demodulation techniques and apply them in analog communication systems.
2. Examine the merits and short comings of the basic digital modulation techniques.
3. Compare the characteristics of standard multiplexing techniques and select the suitable one for specific requirement.
4. Analyze the performance of pulse modulation and coding techniques.

Annexure-2

Revised syllabus of AEIE2252

Paper Name: Industrial Instrumentation Lab					
Paper Code: AEIE2252					
Contact hrs	**L**	**T**	**P**	**Total**	**Credit Points**
per week:	0	0	2	2	1

List of Experiments:

1. Familiarization with diaphragm, capsule, bellow, Bourdon tube, orifice plate, pitot tube, venture meter, control valve, control valve positioner, pneumatic relay, etc.
2. Study the characteristics of Flapper Nozzle system used in pneumatic instruments.
3. Calibration of pressure gauge and pressure transmitter using Dead Weight Tester with interfacing facility to LabVIEW software.
4. Case study of a real time industrial weighing system with automation built in LabVIEW software.
5. Study the characteristics of thermocouple and RTD.
6. Measurement of liquid flow through orifice meter/Venturi meter using manometer differential head, and comparison of the same with the reading of flow transmitter interfaced to the software.
7. Measurement of liquid flow rate using Rotameter, and comparison of the same the reading of flow transmitter interfaced to the LabVIEW software.
8. Measurement of liquid level using float type sensor and ultrasonic sensor.
9. Moisture measurement using moisture analyzer.
10. Data logging of different process signals using data acquisition card in LabVIEW software.
11. Calibration of Transmitters used for process parameter (Flow/level/temperature/pressure/ displacement) measurement in LabVIEW software.

Course Outcome:

After the completion of the course students will be able to

1. Select proper sensing elements for the measurement of physical parameters like pressure, flow, level, temperature etc.

2. Demonstrate the calibration process of pressure measuring devices using dead weight taster.
3. Measure process parameters like flow and level using different measuring devices.
4. Understand characteristics of Flapper –Nozzle system.
5. Calculate load flow rate in conveyor belt using industrial weighing system.
6. Formulate moisture percentage of a given sample.

Lab Experiments. Vs. CO mapping corrections

Course Outcomes	Experiments
1. Select proper sensing elements for the measurement of physical parameters like pressure, flow, level, temperature etc.	1, 2,3,4,5,6, 7,8,9,10,11
2. Demonstrate the calibration process of pressure measuring devices using dead weight taster.	3,11
3. Measure process parameters like flow, pressure, level and temperature using different measuring devices.	2,3,4,5,6,7, 8
4. Understand characteristics of Flapper –Nozzle system.	2
5. Calculate load flow rate in conveyor belt using industrial weighing system.	4
6. Formulate moisture percentage of a given sample.	9

CO	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
AEIE2252.1	3	3	1	1					1			1	3	1	1
AEIE2252.2	2	2	1	1	1	1			1	1		1	2	1	1
AEIE2252.3	3	2	1	1	1	1			1			1	2	2	2
AEIE2252.4	3	2	1	1	1				1			1	2	1	1
AEIE2252.5	2	2	2	1	1	1			1			1	2	2	2
AEIE2252.6	2	2		1		1			1			1	1		
Avg._ AEIE2252	2.50	2.17	1.20	1.00	1.00	1.00	-	-	1.00	1.00	-	1.00	2.00	1.40	1.40

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY

The following members are present in BOS Meeting held on 07.03.2022

Chairman:

1. Prof. (Dr.) Madhurima Chattopadhyay, HOD, AEIE Dept.

External Members:

2. Dr. Rajib Bandyopadhyay (Professor, Dept. of IEE, Jadavpur University)
3. Dr. Sunit Kumar Sen (Ex. Prof., Dept. of Applied Physics, Calcutta University)
4. Dr. Sankar Narayan Patra (Associate Prof., Dept. of IEE, Jadavpur University)
5. Dr. Tapas Chakravarty (Principal Scientist, TCS Research & Innovation)
6. Mr. Suddhasattwa Roy (Manager, IOCL- Alumnus, Principal nominated) 07/03/22

Departmental Members:

7. Prof. (Dr.) Santanu Ghorai, AEIE Dept.
8. Prof. (Dr.) Surajit Bagchi, AEIE Dept.
9. Prof. (Dr.) Arabinda Kumar Pal, AEIE Dept.
10. Prof. (Dr.) Soumik Das, AEIE Dept. Soumik Das
11. Prof. Reshma Sengupta, AEIE Dept.
12. Prof. Indrajit Naskar, AEIE Dept.
13. Prof. (Dr.) Pradip Saha, AEIE Dept.
14. Prof. Samiul Alam, AEIE Dept.
15. Prof. Arindam Sarkar, AEIE Dept.
16. Prof. Samik Chakraborty, AEIE Dept.
17. Prof. Damayanti Ghosh, AEIE Dept.
18. Prof. (Dr.) Anil Kumar Bag, AEIE Dept. AKBag
19. Prof. (Dr.) Debjyoti Chowdhury, AEIE Dept. 7/3/22

HOD/ DC/ Representative of:

20. (Department of Humanities, HITK)

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY

MINUTES OF THE NINTH MEETING OF THE BOARD OF STUDIES (BOS) HELD ON THURSDAY, THE 4th MARCH, 2021, AT 11:00 AM IN THE ROOM NO. ICT 102 OF THE DEPARTMENT

Members Present:

1. Prof. (Dr.) Madhurima Chattopadhyay, HOD, AEIE Dept.	Chairman
Departmental Members:	
2. Prof. (Dr.) Santanu Ghorai, AEIE Dept.	Member
3. Prof. (Dr.) Surajit Bagchi, AEIE Dept.	Member
4. Prof.(Dr.) Arabinda Kumar Pal, AEIE Dept.	Member
5. Prof. (Dr.) Soumik Das, AEIE Dept.	Member
6. Prof. Reshma Sengupta, AEIE Dept.	Member
7. Prof. Indrajit Naskar, AEIE Dept.	Member
8. Prof. Pradip Saha, AEIE Dept.	Member
9. Prof. Samiul Alam, AEIE Dept.	Member
10. Prof. Arindam Sarkar, AEIE Dept.	Member
11. Prof. Samik Chakraborty, AEIE Dept.	Member
12. Prof. Damayanti Ghosh, AEIE Dept.	Member
13. Prof. (Dr.) Anil Bag, AEIE Dept.	Member
14. Prof. Debjyoti Chowdhury, AEIE Dept.	Member

External Members:

15. Dr.Sunit Kumar Sen (Ex. Prof., Dept. of Applied Physics, Calcutta University – Academic Council nominee)
16. Dr.Sankar Narayan Patra (Associate Prof., Dept. of IEE,Jadavpur University- Academic Council nominee)
17. Dr. Tapas Chakravarty (Principal Scientist, TCS Research & Innovation- Academic Council nominee)
18. Mr. Suddhasattwa Roy (Manager, IOCL- Alumnus, Principal nominated)

HOD/DC/Representative from other Departments:

19. Representative of Chemical Engg Department
20. Representative of ECE Department

Welcome by the Chairman

The Chairman welcomed all members to this Ninth Board of Studies meeting.

1. Confirmation of the minutes of the last meeting held on June 2020.

The minutes of the eighth BOS meeting was confirmed without any modification.

2. Approval of the Syllabi for the subjects, finalized through workshop, to be offered to the B.Tech. 7th & 8thSemester AEIE students under autonomy.

Following comments are obtained from experts:

I. All the members were agreed to include the topics 'Mass spectrometer: working principle and applications' in module III and 'instrumentation of horizontal and vertical electrophoresis; ion trap mass spectrometer; concept of scanning electron microscope (SEM)' in module IV in AEIE4131 (Analytical Instrumentation) syllabus.

II. In AEIE4133 (Non-Destructive Testing) the following topics were included in the syllabus; Classification of various sensors for NDT in module-I, types of arrangement, advantages, limitations, interpretation/evaluation of eddy current testing and Case studies: pipeline leakage testing in module III, and Case studies: sonar, radar in module IV, respectively.

III. The total lectures of 'Introduction to MEMS (AEIE4111)' were modified to 40 from 36 as this is four credit course.

IV. In AEIE4121 (Instrumentation and Telemetry) the following topics were included in the syllabus: 'DP transmitters' and 'pyrometer' in module II and 'Introduction to IoT', in module IV.

V. In digital control techniques (AEIE4232), it is decided to include 'properties of z-transform' in module II.

3. Revised Course Outcomes and CO-PO, PSO mapping

The COs of all the courses of B. Tech 7th and 8th semesters and their mapping with POs and PSOs have been approved with modification suggested by the members.

4. BOS Expert's comments on 4th year B. Tech AEIE syllabus for non-departmental subjects:

I. In HMTS4101 (Principles of Management) there are total 32 lecture periods. This may be modified to 36 as all three credit course contains 36 lectures. Further, four CO's contain the same key words "understand". This may be modified.

II. The syllabus ECEN4121 (Software Defined Radio) is like a skeleton of the course. It should be clearly mentioned the topics in each module that will be covered. For example, the terms like "SDR- some applications, future directions", etc. may be specifically mentioned. Emerging application of SDR may be introduced to make the syllabus more attractive to students.

III. The course name of BIOT4124 (Biosensor) may be modified as "Biosensors". Further, there are total 40 lectures in 3 credit course. It may be reduced to 36 lectures.

IV. In CSEN4121 (Fundamentals of Operating Systems) there are some questions in the syllabus, e.g., "What do OS do?" This may be modified as "Function of OS or importance of OS". Also, there are 40 lectures in a 3 credit course. It may be reduced to 36 lectures.

V. In ECEN4125 (Ad Hoc Wireless Networks) course following two books may be included:

a) Data Communications and Networking- B. A. Forouzan, McGraw Hill Education; 4th edition (1 July 2017).

b) Field-bus and Networking in Process Automation- Sunit Kumar Sen, CRC Press; 1st edition (21 May 2014).

VI. In INFO4221 (Fundamentals of Cryptography) there are total 40 lectures in 3 credit course. It may be reduced to 36 lectures.

4: Miscellaneous

i) The members discussed about the teaching learning in online class method and evaluation procedure of the students performance.

ii) The board members checked the subject wise CO and PO attainment and decided to modify the COs/Course content of the following courses in the next BOS meeting:
AEIE2103- Circuit Theory and Network Analysis
AEIE2111- Material Science and Technology
AEIE2203- Electrical and Electronic Measurements
AEIE2252- Industrial Instrumentation LAB
AEIE2253-Electrical and Electronic Measurements LAB
AEIE3131- Communication Techniques

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

Prof. (Dr.) Madhurima Chattopadhyay
Chairman,
Board of Studies, Dept. of AEIE

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

The following members are present in BOS Meeting held on 24.03.2021

Chairman:

1 Prof. (Dr.) Madhurima Chattopadhyay (HOD, Dept. of AEIE, HITK,) -

External Members:

2 Dr. Sunit Kumar Sen, Ex-Prof., Department of Applied Physics, Instrumentation, University of Calcutta

3 Dr. Tapas Chakraborty, Principal Scientist, TCS Research and Innovation Division, Kolkata

4 Prof.(Dr.) Shankar Narayan Patra, HOD, Department of Instrumentation and Electronics Engg., Jadavpur University

5 Mr. Suddhasattwa Roy, Assistant Manager, IOCL Kolkata

Departmental Members

6. Prof. (Dr.) Santanu Ghorai (Dept. of AEIE, HITK, member) -
7. Prof. (Dr.) Surajit Bagchi (Dept. of AEIE, HITK, member) -
8. Prof. (Dr.) Arabinda Kumar Pal (Dept. of AEIE, HITK, member) -
9. Prof. (Dr.) Anil Kumar Bag (Dept. of AEIE, HITK, member) -
10. Prof. (Dr.) Soumik Das(Dept. Of AEIE, HITK , member) -
11. Prof. Reshma Sengupta (Dept. Of AEIE, HITK , member) -
12. Prof. Indrajit Naskar (Dept. Of AEIE, HITK , member) -
13. Prof. (Dr.) Pradip Saha (Dept. Of AEIE, HITK , member) -
14. Prof. Samiul Alam (Dept. Of AEIE, HITK , member) -
15. Prof. Arindam Sarkar (Dept. Of AEIE, HITK , member) -
16. Prof. Samik Chakraborty (Dept. Of AEIE, HITK , member) -
17. Prof. Damayanti Ghosh (Dept. Of AEIE, HITK , member) –
18. Prof. Debjyoti Chowdhury (Dept. Of AEIE, HITK , member) -

HOD/ DC/ Representative of:

19. (Department of Humanities, HITK)
20. (Department of Mathematics, HITK)
21. (Department of ChE, HITK.)
22. (Department of CSE/ IT, HITK).
23. (Department of ECE, HITK).

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY

MINUTES OF THE EIGHTH MEETING OF THE BOARD OF STUDIES (BOS) HELD ONLINE ON 29th JUNE, 2020

The eighth BOS meeting couldn't organized physically due to COVID-19 pandemic. Under this situation the departmental committee members prepared the 5th and 6th semester syllabi of B. Tech (AEIE) after several meetings in ZOOM platform held on 29th June, 2020. The prepared detailed syllabus then circulated to all members to provide their comments and views. We have got feedback from following internal members as well as external members.

Members Present:

1. Prof. (Dr.) MadhurimaChattopadhyay, HOD, AEIE Dept. — Chairman

Departmental Members:

2. Prof. (Dr.) Santanu Ghorai, AEIE Dept. — Member
3. Prof. (Dr.) SurajitBagchi, AEIE Dept. — Member
4. Prof.(Dr.) Arabinda Kumar Pal, AEIE Dept. — Member
5. Prof. (Dr.) Soumik Das, AEIE Dept. — Member
6. Prof. ReshmaSengupta, AEIE Dept. — Member
7. Prof. IndrajitNaskar, AEIE Dept. — Member
8. Prof. PradipSaha, AEIE Dept. — Member
9. Prof. SamiulAlam, AEIE Dept. — Member
10. Prof. Arindam Sarkar, AEIE Dept. — Member
11. Prof. SamikChakraborty, AEIE Dept. — Member
12. Prof. Damayanti Ghosh, AEIE Dept. — Member
13. Prof. (Dr.) Anil Bag, AEIE Dept. — Member
14. Prof. Debjyoti Chowdhury, AEIE Dept. — Member

External Members:

15. Dr.RajibBandyopadhyay (Professor, Dept. of IEE,Jadavpur University- Expert: V.C. (MAKAUT) nominee)
16. Dr.Sunit Kumar Sen (Ex. Prof., Dept. of Applied Physics, Calcutta University – Academic Council nominee)
17. Dr.Sankar Narayan Patra (Associate Prof., Dept. of IEE,Jadavpur University- Academic Council nominee)
18. Dr. Tapas Chakravarty (Principal Scientist, TCS Research & Innovation- Academic Council nominee)
19. Mr.Suddhasattwa Roy (Manager, IOCL- Alumnus, Principal nominated)

Based on the comments obtained from the members the following resolutions are taken by circulation to all members:

1. Confirmation of the minutes of the last meeting held on 26.04.2019.

The minutes of the seventh meeting was confirmed without any modification.

2. Approval of the Syllabi for the subjects, finalized through workshop, to be offered to the B.Tech. 5th &6th Semester AEIE students under autonomy.

Following comments are obtained from experts:

I. Process control: Add the book of B.G. Liptak : Process Control: Instrument Engineers' Handbook

II. Microprocessors and microcontrolles: Is it possible to reduce the content? It is huge and would be difficult to cover. You may consider removing 8254, 8251. Also you may keep PIC microcontroller only removing 8051. Keep some books of int. publishers in the list.

III. In the syllabus for "Introduction to Internet of Things: (AEIE 3201), Python is introduced in Module II. Python programming -particularly for processing sensor data and application of ML has become very important in industry. Students with knowledge of Python programming tend to get advantage in recruitment and subsequent work allocation. Is it possible for you to Introduce Python as a separate course running in conjunction with the IoTcourse? Do you need the RDBMS course for your students?

Some modifications have been performed for departmental subjects as suggested by the experts. Separate Python course may be introduced after completion of graduation of two batches. The detailed approved syllabi are attached herewith.

3. Revised Course Outcome

The COs of all the courses and their mapping with POs have been approved with modification suggested by the members.

4. BOS Expert's comments on 3rd year B. Tech AEIE syllabus for non-departmental subjects:

I. In the syllabus for "Introduction to Internet of Things: (AEIE 3201), Python is introduced in Module II. Python programming -particularly for processing sensor data and application of ML has become very important in industry. Students with knowledge of Python programming tend to get advantage in recruitment and subsequent work allocation. Is it possible for you to Introduce Python as a separate course running in conjunction with the IoT course? Do you need the RDBMS course for your students?

II. In CSEN3206 (Basics of RDBMS) there are 45 classes. It may be reduced to 40 classes.

III. In HMTS3201 (Economics for Engineers) the distribution of lectures in different module is as follows: 6+4+14+12. It may be distributed evenly.

IV. In ECEN3223 (Analog and Digital Comm.) there are 5 COs, whereas in all other theory subjects 6 COs are there.

V. In MATH3222 & MATH3223 number of classes in different modules are not mentioned.

These comments are communicated to respective departments for necessary corrections.

4: Miscellaneous

i) Chairman produced the last NBA visit report in front of the BOS members. The members had a discussion on the comments made by the NBA experts.

ii) As per the comments of NBA experts and the recommendation of the DAC of AEIE department, the BOS members have discussed the mapping of PEO with the mission statements of the department and approved the following mapping with necessary modifications.

PEO Statements	Mission1	Mission2	Mission3
PEO1: The graduates of Applied Electronics & Instrumentation Engineering Program should be able to establish them as practicing professionals in industries /R&D laboratories / academic sectors, or have achieved higher educational qualifications.	**3**	**2**	**1**
PEO2: The graduates of Applied Electronics & Instrumentation Engineering Program should be able to adapt themselves with latest developments in the discipline, including application of modern technologies.	**3**	**3**	**1**
PEO3: The graduates of Applied Electronics & Instrumentation Engineering Program should be able to demonstrate their ability to work as leaders and team members at workplace.	**2**	**2**	**3**

iii) The BOS members discussed on the CO attainment levels of all courses as per the suggestion of the NBA experts and agreed to upgrade the criteria for attainment levels of the LAB courses. Finally, the following criteria for CO attainment levels are set for the LAB courses:

a) **Attainment Level 1**: 40% of students score more than 70% marks out of maximum relevant marks.
b) **Attainment Level 2**: 50% of students score more than 70% marks out of maximum relevant marks.
c) **Attainment Level 3**: 60% of students score more than 70% marks out of maximum relevant marks.

However, the criteria for CO attainment levels of the theory courses remain same as earlier.

iv) The chairman of BOS presented the PO, PEO and PSO of the department before the board members and had a discussion about the evaluation and mapping procedure of different components.

v) The members discussed about the online class method and evaluation of students performance.

vi) The board members lastly checked and approved the subject wise CO and PO attainment.

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

Prof. (Dr.) Madhurima Chattopadhyay
Chairman,
Board of Studies, Dept. of AEIE

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHSOLOGY

The following members are present in BOS Meeting held on 29/06/2023

Chairman:

1. Prof. (Dr.) Madhurima Chattopadhyay, HOD, AEIE Dept.

External Members:

2. Dr. Rajib Bandyopadhyay (Professor, Dept. of IEE, Jadavpur University)
3. Dr. Sunit Kumar Sen (Ex. Prof., Dept. of Applied Physics, Calcutta University)
4. Dr. Sankar Narayan Patra (Associate Prof., Dept. of IEE, Jadavpur University)
5. Dr. Tapas Chakravarty (Principal Scientist, TCS Research & Innovation)
6. Mr. Suddhasattwa Roy (Manager, IOCL- Alumnus, Principal nominated)

Departmental Members:

7. Prof. (Dr.) Santanu Ghorai, AEIE Dept.
8. Prof. (Dr.) Surajit Bagchi, AEIE Dept.
9. Prof. (Dr.) Arabinda Kumar Pal, AEIE Dept.
10. Prof. (Dr.) Soumik Das, AEIE Dept.
11. Prof. Reshma Sengupta, AEIE Dept.
12. Prof. Indrajit Naskar, AEIE Dept.
13. Prof. (Dr.) Pradip Saha, AEIE Dept.
14. Prof. Samiul Alam, AEIE Dept.
15. Prof. Arindam Sarkar, AEIE Dept.
16. Prof. Samik Chakraborty, AEIE Dept.
17. Prof. Damayanti Ghosh, AEIE Dept.
18. Prof. (Dr.) Anil Kumar Bag, AEIE Dept.
19. Prof. Debjyoti Chowdhury, AEIE Dept.

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY

MINUTES OF THE SEVENTH MEETING OF THE BOARD OF STUDIES (BOS) HELD ON FRIDAY, THE 26th APRIL, 2019 AT 10:00 A.M. IN THE ROOM NO. ICT 110 OF THE DEPARTMENT

Members Present:

1 Prof. (Dr.) Madhurima Chattopadhyay, HOD, AEIE Dept. — Chairman

External Members:

2 Prof. (Dr.) Sunit Kumar Sen, (HOD, Electrical Engineering Dept., SKFGI, Mankundu)
Expert: V.C. (MAKAUT) nominee:-

3 Dr. Biswajit Ghosh, (Vice Chancellor, The Neotia University, Kolkata)

Departmental Members:

4 Prof. (Dr.) Santanu Ghorai, AEIE Dept. — Member
5 Prof. (Dr.) Surajit Bagchi, AEIE Dept. — Member
6 Prof.(Dr.) Arabinda Kumar Pal, AEIE Dept. — Member
7 Prof. (Dr.) Soumik Das, AEIE Dept. — Member
8 Prof. Reshma Sengupta, AEIE Dept. — Member
9 Prof. Indrajit Naskar, AEIE Dept. — Member
10 Prof. Pradip Saha, AEIE Dept. — Member
11 Prof. Samiul Alam, AEIE Dept. — Member
12 Prof. Arindam Sarkar, AEIE Dept. — Member
13 Prof. Samik Chakraborty, AEIE Dept. — Member
14 Prof. Damayanti Ghosh, AEIE Dept. — Member
15 Prof. (Dr.) Anil Bag, AEIE Dept. — Member
16 Prof. Debjyoti Chowdhury, AEIE Dept. — Member

Representative of other Dept.:

17 Prof. Suparna Chakraborty (Dept. of Humanities)
18 Prof. Dipankar Chakraborty (Dept. of Mathematics)
19 Prof. Abhijit Mandal (dept. of Chemistry)

Leave of Absence was granted to:

Prof. (Dr.) Rajib Bandyopadhyay, (Prof. IEE Dept., Jadavpur University)
Mr. Sugata Bandyopadhyay, (Senior GM, TCEL)
Mr. Anupam Baid, (Director, Baid Power Services Pvt.Ltd., Alumnus)

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 Board of Studies meeting.

Agenda No. 1 : Confirmation of the minutes of the last meeting held on 27.06.2018.

The minutes of the Sixth meeting was confirmed without any modification.

Agenda No. 2 : Approval of the Syllabi for the subjects, finalized through workshop, to be offered to the B.Tech. 3rd & 4th Semester and M.Tech. 3rd & 4th Semester AEIE students under autonomy.

The departmental committee under the supervision of HOD through workshop prepared the 3rd and 4th semester syllabi of B.Tech (AEIE) and M.Tech (AEIE) under autonomy. The chairman of BOS presented the syllabi before the board members for their approval. Members of BOS have approved the syllabi of 3rd and 4th semester syllabi of B.Tech (AEIE) and M.Tech (AEIE). The detailed approved syllabi are attached herewith.

Agenda No. 3: Revised Course Outcome

In presence of chairman of BOS, other expert Members of BOS discussed about the revised course outcomes (COs) of the presented syllabi of B.Tech and M.Tech (AEIE). Members of BOS have approved the new COs.

Agenda No. 4: Miscellaneous

i) Members of BOS discussed about upcoming NBA visit to the department.

ii) The chairman of BOS presented the PO, PEO and PSO of the department before the board members and had a discussion about the evaluation and mapping procedure of different components.

iii) The previous odd semester result of 2018-19, is also analyzed by the board members.

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

Prof. (Dr.) Madhurima Chattopadhyay
Chairman
Board of Studies, Dept. of AEIE

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

The following members are present in BOS Meeting held on 26.04.2019

Chairman:

1 Prof. (Dr.) Madhurima Chattopadhyay (HOD, Dept. of AEIE, HITK,) -

External Members:

2 Prof. (Dr.) Sunit Kumar Sen, (HOD, Electrical Engineering Dept., SKFGI, Mankundu) -

3. Prof. (Dr.) Rajib Bandyopadhyay (Professor, Dept of IEEE, Jadavpur University)-

4. Dr. Biswajit Ghosh (Vice Chancellor, The Neotia University, Kolkata) –External Expert, VC (MAKAUT) nominee-

5. Mr. Anupam Baid (Director, Baid Power Services Pvt. Ltd, Alumnus, Principal nominated) –

Departmental Members

6. Prof. (Dr.) Santanu Ghorai (Dept. of AEIE, HITK, member) -
7. Prof. (Dr.) Surajit Bagchi (Dept. of AEIE, HITK, member) -
8. Prof. (Dr.) Arabinda Kumar Pal (Dept. of AEIE, HITK, member) -
9. Prof. (Dr.) Anil Kumar Bag (Dept. of AEIE, HITK, member) -
10. Prof. (Dr.) Soumik Das(Dept. Of AEIE, HITK , member) -
11. Prof. Reshma Sengupta (Dept. Of AEIE, HITK , member) -
12. Prof. Indrajit Naskar (Dept. Of AEIE, HITK , member) -
13. Prof. (Dr.) Pradip Saha (Dept. Of AEIE, HITK , member) -
14. Prof. Samiul Alam (Dept. Of AEIE, HITK , member) -
15. Prof. Arindam Sarkar (Dept. Of AEIE, HITK , member) -
16. Prof. Samik Chakraborty (Dept. Of AEIE, HITK , member) -
17. Prof. Damayanti Ghosh (Dept. Of AEIE, HITK , member) -
18. Prof. Debjyoti Chowdhury (Dept. Of AEIE, HITK , member) -

HOD/ DC/ Representative of:

19. (Department of Humanities, HITK)
20. (Department of Mathematics, HITK)
21. (Department of Chemistry, HITK.)
22. (Department of CSE/ IT, HITK).

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY

MINUTES OF THE SIXTH MEETING OF THE BOARD OF STUDIES (BOS) HELD ON WEDNESDAY, THE 27th JUNE, 2018 AT 10:00 A.M. IN THE ROOM NO. ICT 109 OF THE DEPARTMENT

Members Present:

1 Prof. (Dr.) Madhurima Chattopadhyay, HOD, AEIE Dept. — Chairman

External Members:

2 Prof. (Dr.) Sunit Kumar Sen, (Professor, Applied Physics Dept., Calcutta University)

3 Dr. Biswajit Ghosh (Vice Chancellor, The Neotia University, Kolkata), *(Expert: V.C. (MAKAUT) nominee)*

4 Mr. Anupam Baid, Director, Baid Power Services Pvt.Ltd., Alumnus

Departmental Members:

5 Prof. (Dr.) Santanu Ghorai, AEIE Dept. — Member

6 Prof. Surajit Bagchi, AEIE Dept. — Member

7 Prof.(Dr.) Arabinda Kumar Pal, AEIE Dept. — Member

8 Prof. (Dr.) Soumik Das, AEIE Dept. — Member

9 Prof. Reshma Sengupta, AEIE Dept. — Member

10 Prof. Indrajit Naskar, AEIE Dept. — Member

11 Prof. Pradip Saha, AEIE Dept. — Member

12 Prof. Samiul Alam, AEIE Dept. — Member

13 Prof. Arindam Sarkar, AEIE Dept. — Member

14 Prof. Samik Chakraborty, AEIE Dept. — Member

15 Prof. Damayanti Ghosh, AEIE Dept. — Member

16 Prof. (Dr.) Anil Bag, AEIE Dept. — Member

17 Prof. Debjyoti Chowdhury, AEIE Dept. — Member

Representative of other Dept.:

19 Prof. Sudipta Sarkar (Dept. of Mathematics)

Leave of Absence was granted to:

Prof. (Dr.) Rajib Bandyopadhyay

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

Welcome by the Chairman

The Chairman welcomed all members to this Sixth Board of Studies meeting.

Agenda No. 1 : Confirmation of the minutes of the last meeting held on 18.11.2016.

The minutes of the Fifth meeting was confirmed without any modification.

Agenda No. 2 : Approval of the Syllabi for the subjects, finalized through workshop, to be offered to the B.Tech. AEIE students under autonomy.

The departmental committee under the supervision of HOD and external experts, through workshop developed the course structure and detailed syllabi of B.Tech (AEIE). The chairman of BOS presented the course structure and syllabi before the board members for their approval. Members of BOS have approved both the course structure and syllabi of B.Tech (AEIE). The detailed approved syllabi are attached herewith.

Agenda No. 3: Course Outcome

The committee discussed about course outcomes (COs) of the presented syllabi. Members of BOS have approved the new COs.

Agenda No. 4: Miscellaneous

i) The chairman of BOS informed the board members about the departmental PO and PEO.
ii) Student performance in the last semester examination is also discussed in the meeting.

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

Prof. (Dr.) Madhurima Chattopadhyay
Chairman
Board of Studies, Dept. of AEIE

BOARD OF STUDIES

DEPARTMENT OF AEIE

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

The following members are present in BOS Meeting held on 27.06.2018

Chairman:

1 Prof. (Dr.) Madhurima Chattopadhyay (HOD, Dept. of AEIE, HITK,)

External Members:

2 Prof. (Dr.) Sunit Kumar Sen, (Applied Physics Dept., Calcutta University) - 27/06/18

3 Dr. Biswajit Ghosh (Dean of Engg. Sciences, The Neotia University, Kolkata) –External Expert, VC (MAKAUT) nominee-

4 Mr. Anupam Baid (Director, Baid Power Services Pvt.Ltd, Alumnus, Principal nominated) –

Departmental Members

5. Prof. (Dr.) Santanu Ghorai (Dept. of AEIE, HITK, member) -
6 Prof. Surajit Bagchi (Dept. of AEIE, HITK, member) -
7 Prof. Arabinda Kumar Pal (Dept. of AEIE, HITK, member) -
8. Prof. (Dr.) Anil Kumar Bag (Dept. of AEIE, HITK, member) -
9. Prof. (Dr.) Soumik Das(Dept. Of AEIE, HITK , member) -
10 Prof. Reshma Sengupta (Dept. Of AEIE, HITK , member) -
11 Prof. Indrajit Naskar (Dept. Of AEIE, HITK , member) -
12 Prof. Pradip Saha (Dept. Of AEIE, HITK , member) -
13 Prof. Samiul Alam (Dept. Of AEIE, HITK , member) -
14 Prof. Arindam Sarkar (Dept. Of AEIE, HITK , member) -
15 Prof. Samik Chakraborty (Dept. Of AEIE, HITK , member) -
16. Prof. Damayanti Ghosh (Dept. Of AEIE, HITK , member) -
17. Prof. Debjyoti Chowdhury (Dept. Of AEIE, HITK , member)

HOD/ DC/ Representative of:

18.
19. Sudipta Sarkar 27/06/18 (Department of Humanities, HITK)
20. (Department of Mathematics, HITK)
21. (Department of Physics, HITK)
22. (Department of Chemistry, HITK.)
23. (Department of ECE, HITK)
24. (Department of CSE/ IT, HITK).
(Department of Mechanical Engineering, HITK).

MINUTES OF THE
BOARD OF STUDIES
OF
BIOTECHNOLOGY

17th Meeting of the Board of Studies
Department of Biotechnology
Heritage Institute of Technology, Kolkata

Attendance Sheet

Date: 24.03.2021

Sl. No.	Name	Department	Signature
1	Dr Sriparna Datta	External expert	Joined online
2	Dr Maitrayee Dasgupta	External expert	Maitrayee DeGp2
3	Dr Uma Ghosh	MAKAUT nominee	Joined online
4	Dr Dipan Chatterjee	Industry expert	Joined online
5	Ms Trisha Mondal	Alumni representative	Trisha Mondal
6	Dr Ambika C Banerjee	Special invitee	
7	Dr Saptaparna Roy	Dept of Humanities	Saptaparna Roy
8	Dr Srabanti Basu	HOD	Srabanti Basu
9	Dr Riddhi Goswami	Member	Riddhi Goswami
10	Dr Dipankar Chaudhuri	Member	Dipankar Chaudhuri 24/03/2021
11	Dr Tapan Kumar Ghosh	Member	T. K. Ghosh
12	Dr Nandan K Jana	Member	Nandan Kumar Jana 24/3/21
13	Dr Soma Banerjee	Member	Soma Banerjee 24/03/2021
14	Dr Sudipta Dey	Member	
15	Dr Kakali Mukherjee	Member	Kakali Mukherjee
16	Dr Ruplekha Chatterjee	Member	Ruplekha
17	Dr Bhaswati Chakraborty	Member	
18	Mr Pluban Chaudhuri	Member	
19	Ms Sonali Hazra Das	Member	

Minutes of the 17th Meeting of the Board of Studies
Department of Biotechnology
Date: 24.03.2021
Time: 2:00 P.M.
Venue: CB 419, Biotechnology Department, Heritage Institute of Technology

Members present:

1. Dr Srabanti Basu (Chairperson)
2. Dr Maitreyee Dasgupta (External Expert)
3. Dr Sriparna Dutta (External expert, joined online)
4. Dr Uma Ghosh (External expert, joined online)
5. Dr Dipan Chatterjee (Industry representative, joined online)
6. Ms Trisha Mandal (Alumni representative, joined online)
7. Dr. Dipankar Chaudhuri
8. Dr. Riddhi Goswami
9. Dr Tapan Kumar Ghosh
10. Dr. Nandan Kumar Jana
11. Dr. Soma Banerjee
12. Dr Sudipta Dey
13. Dr. Kakali Mukherjee
14. Dr Ruplekha Chatterjee
15. Dr Bhaswati Chakraborty
16. Ms Sonali Hazra Das

Minutes

1. The chairperson welcomed the members of BOS and the invitees to the meeting. Dr Ambika Charan Banerjee was invited to this BOS considering his industrial and academic experience.
2. Minutes of the previous meeting of BOS meeting were confirmed.
3. The syllabi for the final-year courses for B. Tech. (Biotechnology) were approved. The curriculum as per recommendation by AICTE was approved in the previous meeting.
   Modifications made in some syllabi following recommendations of External Experts and Industry Representatives.
   3.1 Biomaterials (BIOT3101): As suggested by Dr A C Banerjee. Module 4 was reorganized.
   3.2 Biofertilizers and Biopesticides (BIOT4132): Integrated pest management system and Integrated pest and disease management system were added in Module 4.
   3.3 Post Harvest Technology (BIOT4133): As suggested by Dr Dipan Chatterjee. Packaging concept was added to module 4.
   3.4 Proteomics and Protein Engineering (BIOT 4131) Case studies were added.
   3.5 Bioethics and IPR (BIOT 4231) The Biodiversity conventions were defined.
4. Meeting ended with the vote of thanks.

16th Meeting of the Board of Studies
Department of Biotechnology
Heritage Institute of Technology, Kolkata

Attendance Sheet

Date: 12.03.2020

Sl. No.	Name	Department	Signature
1	Dr Sriparna Datta	External expert	Sriparna Datta 12.3.20
2	Dr Maitrayee Dasgupta	External expert	
3	Dr Uma Ghosh	MAKAUT nominee	U Ghosh 12/03/2020
4	Dr Dipan Chatterjee	Industry expert	
5	Ms Trisha Mondal	Alumni representative	Trisha Mondal
6	Dr Ambika C Banerjee	Special invitee	ACBanerji
7	Dr Srabanti Basu	HOD	Srabanti Basu
8	Dr Riddhi Goswami	Member	Riddhi Goswami 12/3/2020
9	Dr Dipankar Chaudhuri	Member	Dipankar Chaudhuri 12/03/2020
10	Dr Tapan Kumar Ghosh	Member	
11	Dr Nandan K Jana	Member	Nandan Kumar Jana 12/3/20
12	Dr Soma Banerjee	Member	Soma Banerjee 12/3/2020
13	Dr Sudipta Dey	Member	Sudipta Dey 12/3/20
14	Dr Kakali Mukherjee	Member	Kmukherjee 12/3
15	Dr Ruplekha Chatterjee	Member	Ruplekha 12/3
16	Dr Bhaswati Chakraborty	Member	12.3.2020
17	Mr Plaban Chaudhuri	Member	P.C 12.3.2020
18	Ms Sonali Hazra Das	Member	SHD 12/3/2020
19	Dr Aparupa Bhattacharyya	Member	12/3/20
20	SOMENATH SENGUPTA	CSE	
21	Dr. Madhumita Chanda	Humanities	Madhumita Chanda 12/03/2020

Minutes of the 16th Meeting of the Board of Studies
Department of Biotechnology
Date: 12.03.2020
Time: 2:00 P.M.

Members present:

1. Dr Srabanti Basu (Chairperson)
2. Dr Sriparna Dutta (External expert)
3. Dr Ambika Charan Banerjee (Special invitee from Industry)
4. Dr Uma Ghsoh (External Expert)
5. Ms Trisha Mandal (Alumni Representative)
6. Dr. Dipankar Chaudhuri
7. Dr. Riddhi Goswami
8. Dr Tapan Kumar Ghosh
9. Dr. Nandan Kumar Jana
10. Dr. Soma Banerjee
11. Dr Sudipta Dey
12. Dr. Kakali Mukherjee
13. Dr Ruplekha Chatterjee
14. Dr Bhaswati Chakraborty
15. Ms Sonali Hazra Das
16. Mr Plaban Chaudhuri
17. Dr Aparupa Bhattacharyya
18. Somenath Sengupta (Invitee from CSE)
19. Dr Madhurima Chanda (Invitee from Humanities)

Minutes

1. The chairperson welcomed the members of BOS and the invitees to the meeting. Dr Ambika Charan Banerjee was invited to this BOS considering his industrial and academic experience.
2. Minutes of the previous meeting of BOS meeting were confirmed.
3. Title change for the B. Tech and M. Tech. projects: Following projects were approved to go for title change before submission for final examination.
   3.1 Supervisor: Dr Srabanti Basu
   Original Title: Production and characterization of cellulase from a natural source
   Revised title: Production and characterization of amylase from a natural source
   3.2 Supervisor Dr Sudipta Dey
   Original: Optimization of batch biodegradation of m-cresol by mixed microbial consortium isolated from East Kolkata Wetlands
   Revised: Kinetic modeling of batch biodegradation of m-cresol by mixed microbial consortium isolated from East Kolkata Wetlands

4. The syllabi for the third-year courses for B. Tech. (Biotechnology) and M.Tech. (Biotechnology) were approved. The curriculum as per recommendation by AICTE was approved in the previous meeting.
   Modifications made in some syllabi following recommendations of External Experts and Industry Representatives.
   4.1 Genetics (BIOT3101): A small change was made in Module 1. Sex determination portion was made more defined mentioning the models – humans, drosophila and plants.
   4.2 Food Biotechnology (BIOT3131): Module 4 was reconstructed. Detection of adulterant was added in the chemical safety measurement section. FSSAI regulations were introduced as suggested by the industry experts.
   4.3 Immunology (BIOT3201): The portion of primary and secondary immune response was taken from Module 2 to Module 1 as the topics found to be more suitable there.
   4.4 Medical and Pharmaceutical Biotechnology (BIOT 3221) Changes were made in Module 2. The portion 'monoclonal antibodies and their applications' were replaced by 'diagnostics' under which both monoclonal antibody-based diagnostics and DNA and RNA-based diagnostics were placed. Subsequent mention of these techniques in the module was deleted.
   4.5 Plant Biotechnology (BIOT 3211) Module 4 was defined with the model system *Arabidopsis thaliana.*
5. Meeting ended with the vote of thanks.

3rd Year 2nd Semester

A. THEORY								
Sl No	Course Code	Field	Course Title	Contact Hours/Week				Credit Points
				L	T	P	Total	
1	HMTS3201	Humanities	Economics for Engineers	3	0	0	3	3
2	BIOT3201	Prof. Core	Immunology	3	0	0	3	3
3	BIOT3202	Prof. Core	Bioreactor Design and Analysis	3	0	0	3	3
4	CSEN3207	Engg Science	RDBMS Concept and Computer Networking	3	0	0	3	3
5	BIOT3231	Prof. Elective 2	Molecular Modelling and Drug Designing	3	0	0	3	3
	BIOT3232		Biophysics of Macromolecules					
	BIOT3233		Biosensors and Diagnostics					
6	BIOT3221	Emerging Area / Open Elective 1	Medical and Pharmaceutical Biotechnology	3	0	0	3	3
	BIOT3222		Basics of Nanotechnology					
Total of Theory				**18**	**0**	**0**	**18**	**18**
B. PRACTICAL/ LABORATORY								
1	BIOT3251	Prof. Core	Immunology lab	0	0	2	2	1
2	BIOT3252	Prof. Core	Bioreactor Design lab	0	0	2	2	1
3	CSEN3257	Engg Science	RDBMS Concept lab	0	0	2	2	1
4	BIOT3293	Seminar	Term paper & Seminar	0	0	4	4	2
Total of Practical				**0**	**0**	**10**	**10**	**5**
Total of Semester				**18**	**0**	**10**	**28**	**23**
C. HONOURS								
1	BIOT3211	Honours	Plant Biotechnology	3	0	0	3	3
2	BIOT3261	Honours	Plant Tissue Culture Lab	0	0	2	2	1
Total Honours				**3**	**0**	**2**	**5**	**4**
Total of Semester with Honours				**21**	**0**	**12**	**33**	**27**

Sanjaeena Dalta
12. 3. 2020.

TM
12/3/20

3rd Year 1st Semester

Sl No	Course Code	Field	Course Title	Contact Hours/Week L	T	P	Total	Credit Points
A. THEORY								
1	**INCO3016**	Mandatory	Indian Constitution and Civil Society	2	0	0	2	0
2	**BIOT3101**	Prof. Core	Genetics	3	0	0	3	3
3	**BIOT3102**	Prof. Core	Bioinformatics	3	0	0	3	3
4	**BIOT3103**	Prof. Core	Recombinant DNA Technology	3	0	0	3	3
5	**BIOT3104**	Prof. Core	Transfer Operation-II	3	0	0	3	3
6	**BIOT3131**	Prof. Elective 1	Food Biotechnology					
	BIOT3132		Environmental Biotechnology	3	0	0	3	3
	BIOT3133		Bioprocess & Process Instrumentation					
			Total of Theory	**17**	**0**	**0**	**17**	**15**
B. PRACTICAL/ LABORATORY								
7	**BIOT3151**	Prof. Core	Genetics lab	0	0	2	2	1
8	**BIOT3152**	Prof. Core	Bioinformatics lab	0	0	2	2	1
9	**BIOT3153**	Prof. Core	Recombinant DNA Technology lab	0	0	2	2	1
10	**BIOT3154**	Prof. Core	Transfer Operation-II lab	0	0	2	2	1
11	**BIOT3181**	Prof. Elective 1	Food Biotechnology Lab					
	BIOT3182		Environmental Biotechnology Lab	0	0	2	2	1
	BIOT3183		Bioprocess & Process Instrumentation Lab					
			Total of Practical	**0**	**0**	**10**	**10**	**5**
			Total of Semester	**17**	**0**	**10**	**27**	**20**

A L Banerji

Suparna Datta 12. 3. 2020

12/3/20

14th Meeting

Meeting of the Board of Studies of
Department of Biotechnology,
Heritage Institute of Technology, Kolkata

Attendance Sheet

Date: 26.4.2019.

Sl. No.	Name	Designation	Signature
1	Dr. Ambika C Banerjee	External expert	ACBanerjee
2	Dr. Maitrayee Dasgupta	External expert	Maitrayee DasGupta
3	Dr. Sriparna Datta	External expert	Sriparna Datta
4	Dr. Dipan Chatterjee	Alumni	Dipan Chatterjee
5	Dr. Srabanti Basu	Chairperson (HOD)	Srabanti Basu.
6	Dr. Riddhi Goswami	Member	Riddhi Goswami
7	Dr. Dipankar Chaudhuri	Member	Dipankar Chaudhuri
8	Dr. Tapan Kumar Ghosh	Member	T. K. Ghosh
9	Dr. Nandan K Jana	Member	NKJana 26/4/19
10	Dr. Soma Banerjee	Member	Soma Banerjee
11	Dr. Sudipta Dey	Member	Sudipta Dey
12	Dr. Kakali Mukherjee	Member	
13	Dr. Ruplekha Chatterjee	Member	
14	Dr. Bhaswati Chakraborty	Member	
15	Mr. Plaban Chaudhuri	Member	Plaban Chaudhuri
16	Ms. Sonali Hazra Das	Member	
17	Dr. Aparupa Bhattacharyya	Member	Aparupa Bhattacharyya

Minutes of the 14th Meeting of the Board of Studies
Department of Biotechnology
Date: 26.04.2019
Time: 11:00A.M.
Venue: CB 310, Biotechnology Department, Heritage Institute of Technology

Members present:

1. Dr Srabanti Basu (Chairperson)
2. Dr. A.C. Banerjee (Representative from industry)
3. Dr Sriparna Dutta (External expert)
4. Dr Maitrayee Dasgupta (External expert)
5. Dr. Dipankar Chaudhuri
6. Dr. Riddhi Goswami
7. Dr Tapan Kumar Ghosh
8. Dr. Nandan Kumar Jana
9. Dr. Soma Banerjee
10. Dr Sudipta Dey
11. Dr. Kakali Mukherjee
12. Dr Ruplekha Chatterjee
13. Dr Bhaswati Chakraborty
14. Ms Sonali Hazra Das
15. Dr Aparupa Bhattacharyya
16. Dr Ruma Roy Chowdhury (invitee)
17. Moulipriya Ghosh (invitee)
18. Rituparna Ghosh (invitee)

Minutes

1. The chairperson welcomed the members of BOS and the invitees to the meeting.
2. Minutes of the previous meeting of BOS meeting were confirmed.
3. Ratification of departmental budget: Departmental budget of Rs.47.0L was placed to the Principal. Approved by the BOS.
4. The syllabi for the second-year courses for B. Tech. (Biotechnology) and M.Tech. (Biotechnology) were approved. The curriculum as per recommendation by AICTE was approved in the previous meeting.
   Modifications made in some syllabi following recommendations of External Experts and Industry Representatives.
   4.1 Chemistry of Biomolecules (BIOT2101): The modules were reconstructed. Proteins and nucleic acids were put in separate modules as both of them are important for understanding the basics of Biotechnology. External Experts and the Industry Representative welcomed the change.
   4.2 Industrial Stoichiometry (BIOT2102): Module 1 has been renamed and reconstructed as suggested by the External Experts and Industry Representative. The module was renamed as Basic Chemical Calculations. More problems and numerical methods were introduced.

4.3 Thermodynamics and Kinetics (BIOT2201): Module 2 was reconstructed as suggested by the External Experts. Flow measurement and machineries have been introduced replacing Bioenergetics and Kinetics.

4.4 Bioseparation Technology (BIOT 2211) Membrane based separation process was introduced in details as suggested by Dr A C Banerjee, the Industry-Representative.

5. Meeting ended with the vote of thanks.

11 th BOS Meeting 20

Meeting of the Board of Studies of
Department of Biotechnology,
Heritage Institute of Technology, Kolkata

Attendance Sheet

Date: 20.6.'18

SL No.	Name	Designation	Signature
1	Dr. Ambika C Banerjee	External expert	A C Banerjee
2	Dr. Maitrayee Dasgupta	External expert	
3	Dr. Sriparna Datta	External expert	Sriparna Datta
4	Dr. Dipan Chatterjee	Alumni	
5	Dr. Srabanti Basu	HOD	Srabanti Basu
6	Dr. Riddhi Goswami	Member	
7	Dr. Dipankar Chaudhuri	Member	Dipankar Chaudhuri
8	Dr. Tapan Kumar Ghosh	Member	T. K. Ghosh
9	Dr. Nandan K Jana	Member	Nandan Kumar Jana
10	Dr. Soma Banerjee	Member	Soma Banerjee
11	Dr. Sudipta Dey	Member	
12	Dr. Kakali Mukherjee	Member	
13	Dr. Ruplekha Chatterjee	Member	
14	Dr. Bhaswati Chakraborty	Member	
15	Mr. Plaban Chaudhuri	Member	
16	Ms. Sonali Hazra Das	Member	
17	Dr. Aparupa Bhattacharyya	Member	

Minutes of the 11th Meeting of the Board of Studies
Department of Biotechnology
Date: 20.06.2018
Time: 11:00A.M.
Venue: Biotechnology Department, Heritage Institute of Technology

Members present:

1. Dr Srabanti Basu (Chairperson)
2. Dr. A.C. Banerjee (Representative from industry)
3. Dr Sriparna Dutta (External expert)
4. Dr. Dipankar Chaudhuri
5. Dr. Riddhi Goswami
6. Dr Tapan Kumar Ghosh
7. Dr. Nandan Kumar Jana
8. Dr. Soma Banerjee
9. Dr Sudipta Dey
10. Dr. Kakali Mukherjee
11. Dr Ruplekha Chatterjee
12. Dr Bhaswati Chakraborty
13. Ms Sonali Hazra Das
14. Dr Aparupa Bhattacharyya
15. Dr Samarpita Bhattacharyya (invitee)
16. Ms Saptaparna Roy (invitee)

Minutes

1. The chairperson welcomed the members of BOS and the invitees to the meeting.
2. Minutes of the previous meeting of BOS meeting were confirmed.
3. Proposal for honours courses as suggested by the Maulana Abul Kalam Azad University of Technology (MAKUT) was placed and approved.
   Students can do the credit for Honours courses from similar courses of MOOCs (Swayam, NPTEL, Couresera etc).
   Suggested courses from MOOCs are attached with the syllabus.
4. The curriculum includes courses to increase the general awareness, meet the social, environmental issues and increase the employability of the students.
   General awareness and ethics
   Human Values and Professional Ethics (HMTS2001), Indian constitution and civil society (INCO 3016)
   Environmental awareness and environmental issues
   Environmental Science (EVSC2016), Environmental Biotechnology (BIOT3132), Environmental Biotechnology Lab (BIOT3182), Renewable Energy (BIOT4241), Biofertilizers and Biopesticides (BIOT4132)
   Emerging areas leading to better employability
   Tissue Engineering (BIOT4242), Biomaterial (BIOT4131), Biofertilizers and Biopesticides (BIOT4132), Renewable Energy (BIOT4241)

Srabanti Basu

Management related courses leading to better employability
Principles of Management (HMTS4101), Bioethics and IPR (BIOT4231, Bioentrepreneurship and Regulations (BIOT4232)

5. New curriculum adopted by the department for B. Tech. and M. Tech. programmes in Biotechnology as per AICTE recommendations and was placed before BOS. The curriculum (with honours papers for B. Tech. programme) and syllabus for the first-year courses of the above programmes were approved. The approved curriculum and syllabus are attached herewith.
6. Suggestions were placed for value added courses. Two
7. The meeting ended with vote of thanks.

Prabanti Rao.

B.Tech. Biotechnology Curriculum (w.e.f. 2018-19)

1st Year 1st Semester

A. THEORY							
Sl. No	Course Code	Course Name	Contact Hours/ Week				Credit Points
			L	T	P	Total	
1	PHYS1001	Physics	3	1	0	4	4
2	MATH1101	Mathematics I	3	1	0	4	4
3	CSEN1001	Programming for Problem Solving	3	0	0	3	3
		Total of Theory				**11**	**11**
B. PRACTICAL/ LABORATORY							
4	PHYS1051	Physics Lab	0	0	3	3	1.5
5	CSEN1051	Programming for Problem Solving Lab	0	0	4	4	2
6	MECH1051	Workshop / Manufacturing Practices	1	0	4	5	3
		Total of Laboratory				**12**	**6.5**
		Total of Semester				**23**	**17.5**

1st Year 2nd Semester

A. THEORY							
Sl. No	Course Code	Course Name	Contact Hours/ Week				Credit Points
			L	T	P	Total	
1	CHEM1001	Chemistry I	3	1	0	4	4
2	MATH1201	Mathematics II	3	1	0	4	4
3	ELEC1001	Basic Electrical Engineering	3	1	0	4	4
4	HMTS1201	Business English	2	0	0	2	2
		Total of Theory				**14**	**14**
B. PRACTICAL/ LABORATORY							
5	CHEM1051	Chemistry I Lab	0	0	3	3	1.5
6	ELEC1051	Basic Electrical Engineering Lab	0	0	2	2	1
7	MECH1052	Engineering Graphics and Design	1	0	4	5	3
8	HMTS1251	Language Lab	0	0	2	2	1
		Total of Laboratory				**12**	**6.5**
		Total of Semester				**26**	**20.5**

Prepared Date 2016/2018

A K Bansin

M. Tech. Biotechnology (w. e. f. 2018-19)

1st yr 1st semester

Code	Course Title	Scheme of studies per week			Credits
		L	T	P	
A	**Theory**				
BIOT5101 Core I	Advanced Genetic Engineering	3	0	0	3
BIOT5102 Core II	Physicochemical Techniques in Biotechnology	3	0	0	3
BIOT5103	Research Methodology, Bioethics and IPR	2	0	0	2
BIOT5131/5132 Elective I	Advanced Enzyme Technology / Nanotechnology	3	0	0	3
BIOT5141/5142 Elective II	Agricultural Biotechnology / Advanced Environmental Biotechnology	3	0	0	3
DIMA5116 Audit Course	Disaster Management	2	0	0	0
	Total Theory	**16**	**0**	**0**	**14**
B	**Practical**				
BIOT5151 Laboratory 1	Advanced Genetic Engineering Lab	0	0	4	2
BIOT5152 Laboratory 2	Physicochemical Techniques Lab	0	0	4	2
	Total Practical	**0**	**0**	**8**	**4**
	SEMESTER TOTAL	**16**	**0**	**8**	**18**

A C Banerjee
20/6/2018
Sriparna Datta

Minutes of the 9th Meeting of the Board of Studies
Department of Biotechnology
Date: 28.11.2017
Time: 2:00P.M.
Venue: Biotechnology Department, Heritage Institute of Technology

Members present:

1. Dr Srabanti Basu (Chairperson)
2. Dr. A.C. Banerjee (Representative from industry)
3. Dr Sriparna Dutta (External expert)
4. Dr Maitrayee Dagupta (External expert)
5. Dr Dipan Chatterjee (Alumni representative)
6. Dr. Dipankar Chaudhuri
7. Dr. Riddhi Goswami
8. Dr Tapan Kumar Ghosh
9. Dr. Nandan Kumar Jana
10. Dr. Soma Banerjee
11. Dr Sudipta Dey
12. Dr. Kakali Mukherjee
13. Dr Ruplekha Chatterjee
14. Dr Bhaswati Chakraborty
15. Ms Sonali Hazra Das
16. Dr Aparupa Bhattacharyya
17. Dr Rakha Majumdar

Minutes

1. The chairperson welcomed the members of BOS.
2. Minutes of the previous meeting of BOS meeting were confirmed.
3. Paper Setters were finalized for the odd semester examination of B. Tech. and M. Tech. programmes of the department.
4. The syllabus of Nonconventional Energy (BIOT4282), which is to be offered by the Biotechnology department as a Free Elective paper for other departments, was placed before BOS.
   4.1 Case study was introduced in all modules
   4.2 Module was renamed as Biogas
   4.3 Module 3 was renamed as Hydrogen as energy source
   4.4 Module 4 was renamed as Non-conventional energy: Different forms. Indian scenario of non-conventional energy and requirement for non-conventional energy were introduced in Module IV. Bioenergy and Nuclear energy have been introduced.

   The syllabus was reviewed, modified and finalized following the suggestions of External Experts and the Industry-Expert.
5. 4th-year projects were approved by the BOS. It was suggested that any change in project title would be made before submission and should be approved by the

BIOT4282 : NON-CONVENTIONAL ENERGY

II **Module I: ~~Biofuel~~ Biogas**

Biomass as a renewable energy source; types of biomass – forest, agricultural and animal residues, industrial and domestic organic wastes;

Classification of biogas production processes: combustion, pyrolysis, gasification and other thermo-chemical processes;

Production of alcohol and biogas from biomass. Biogas from anaerobic digestion.

Case study

III **Module II : Bio-diesel**

Bio-diesel: Fundamentals; Trans-esterification of vegetable oils for biodiesel production; Characterization of biodiesel: Economics, current trends and future prospects in usage of biodiesel. Case Study

IV **Module III: ~~Bio-~~hydrogen as energy source**

Hydrogen energy: Hydrogen energy system and analysis; Hydrogen infrastructure; Safety, codes and standards. Case study

Hydrogen production: Electrolysis; Thermochemical; Hydrogen from fossil fuel, biomass and renewable sources of energy. Problems on combustion of fuels.

Hydrogen storage: Carbon storage materials; Metal hydrides and chemical hydrides; Cryogenic hydrogen storage.

Hydrogen fuel cells: Principle, importance and classification.

I **Module IV: ~~Solar Energy and other~~ Different Non-conventional energy : Different forms**

a) • Need. Energy-scenario
b) • Solar energy: Solar energy balance, production of electricity, photovoltaic systems.
c) • Wind Energy: Wind energy conversion systems, power generation. Calculations on wind turbine.
d) • Hydro thermal energy: Basics of hydro thermal energy.
e) • Energy from waves and tides. f) Nuclear Energy
g) • Bio-energy

Texts/References:

1. J.E. Smith, Biotechnology, 3rd ed. Cambridge University Press
2. S. Sarkar, Fuels and combustion, 2nd ed., University Press.
3. Donald L. Klass, Biomass for renewable energy, fuels and chemicals, Academic Press.

A. Banerji
Sripoorna Dutta
Maitrayee DeGr
28/11/2017

9th BOS
28.11.

Meeting of the Board of Studies of
Department of Biotechnology,
Heritage Institute of Technology, Kolkata

Attendance Sheet

Date: 28.11.'17. 2:30PM.

Sl. No.	Name	Department	Signature
1	Prof. Ambika C Banerjee	External expert	Abanerjee
2	Prof. Sriparna Datta	External expert	Sriparna Datta
3	Prof. Maitrayee Dasgupta	External expert	Maitrayee DasGupta
4	Dr. Dipan Chatterjee	Alumni member	
5	Prof. Srabanti Basu	HOD	S. Basu.
6	Prof. Riddhi Goswami	Member	
7	Prof. Dipankar Chaudhuri	Member	Dipankar Chaudhuri 28/11/2017
8	Prof. Tapan Kumar Ghosh	Member	T.K. Ghosh
9	Prof. Nandan K Jana	Member	Nandan 28/11/17
10	Prof. Soma Banerjee	Member	Soma Banerjee 28/11/17
11	Prof. Sudipta Dey	Member	28/11/17
12	Prof. Kakali Mukherjee	Member	Kmukherjee.
13	Prof. Ruplekha Chatterjee	Member	Ruplekha
14	Prof. Bhaswati Chakraborty	Member	
15	Prof. Plaban Chaudhuri	Member	
16	Prof. Sonali Hazra Das	Member	
17	Prof. Aparupa Bhattacharyya	Member	Aparupa Bhattacharyya 28/11/17
18	Prof. Rakha Majumder	Member	Rmajumder 28/11/17.

Meeting of the Board of Studies of
Department of Biotechnology,
Heritage Institute of Technology, Kolkata

Attendance Sheet

Date: 14.2.2017 , 2:00PM.

Sl. No.	Name	Department	Signature
1	Prof. Ambika C Banerjee	External expert	A.C.Banerjee
2	Prof. Sriparna Datta	External expert	Sriparna Datta
3	Prof. Maitrayee Dasgupta	External expert	
4	Dr. Dipan Chatterjee	Alumni member	Dipan Chatterjee
5	Prof. Srabanti Basu	HOD	Srabanti Basu
6	Prof. Riddhi Goswami	Member	Riddhi Goswami
7	Prof. Dipankar Chaudhuri	Member	Dipankar Chaudhuri
8	Prof. Tapan Kumar Ghosh	Member	
9	Prof. Nandan K Jana	Member	14/2/17
10	Prof. Soma Banerjee	Member	Soma Banerjee
11	Prof. Sudipta Dey	Member	
12	Prof. Kakali Mukherjee	Member	Mukherjee
13	Prof. Ruplekha Chatterjee	Member	
14	Prof. Bhaswati Chakraborty	Member	
15	Prof. Plaban Chaudhuri	Member	P.C
16	Prof. Sonali Hazra Das	Member	
17	Prof. Aparupa Bhattacharyya	Member	14/2/17
18	Prof. Nababithi Goswami	Member	

Minutes of the 7th Meeting of the Board of Studies
Department of Biotechnology
Date: 14.2.2017
Time: 2:00P.M.
Venue: Biotechnology Department, Heritage Institute of Technology

Members present:

1. Dr Srabanti Basu (Chairperson)
2. Dr. A.C. Banerjee (Representative from industry)
3. Dr Sriparna Dutta (External expert)
4. Dr Dipan Chatterjee (Alumni representative)
5. Dr. Dipankar Chaudhuri
6. Dr. Riddhi Goswami
7. Dr. Nandan Kumar Jana
8. Dr. Soma Banerjee
9. Dr. Kakali Mukherjee
10. Mr. Plaban Chaudhuri
11. Dr Aparupa Bhattacharyya

Minutes

1. The chairperson welcomed the members of BOS.
2. Leave of absence was granted for Dr Maitreyee Dasgupta who informed her preoccupation.
3. Minutes of the previous meeting of BOS meeting were confirmed.
4. Departmental budget with the amount of 33L, of which 26.5L was for B. Tech. and 6.5L was for M. Tech. programme, for the financial year 2017-18, has been prepared and will be placed to the Principal.
5. Paper Setters were finalized for the even semester examinationof B. Tech. and M. Tech. programmes of the department.
6. The 7th-sem syllabi of elective papers of for B. Tech. programme, as drafted in the workshop held on 16.9.2016 with departmental faculty members and external experts were placed. The syllabi were reviewed and modifications were made as suggested by the external experts in the BOS meeting. The syllabi were finalized.
   6.1 Food Biotechnology (Biot4141): All the modules were reconstructed. The subject was made more industry-oriented. Contents of Module 1 and 2 describing the Food Preservation and Food Production Technology have been elaborated and made more organized following the suggestions by Dr A C Banerjee, the Industry Expert and Dr Dipan Chatterjee, the Alumni Representative, who works in a food industry.
   6.2 Environmental Biotechnology (BIOT 4142): As suggested by external experts, solid waste management and bioremediation, two major important techniques to address industrial issues, have been introduced.

6.3 Bioprocess and process instrumentation (BIOT4143): The syllabus had been constructed in the workshop and was finalized in the BOS meeting.

7. The meeting ended with vote of thanks.

Minutes of the Board of Studies of the Chemical Engineering Department, HIT, Kolkata

Heritage Institute of Technology , Kolkata
Department of Chemical Engineering

20.01.2017

Minutes of the 5th meeting of the Board of Studies of Chemical Engineering, held on 18.01.2017 at 3:00 P.M. in Room No: CB 315 :

Members present :-

1. Prof. S. Chatterjee, Head of the Department, in the chair.
2. Prof. P.S.Ray, External Member
3. Prof. B. Barman, External Member
4. Dr. A. R. Ghosal, External Member
5. Prof. B.R. Saha
6. Prof. S. Vedajnananda
7. Prof. P. Bhattacharya
8. Prof. D. Datta
9. Prof. S. Bhattacharya
10. Prof. A.K. Sen
11. Prof. A. Mallick
12. Prof. Avijit Ghosh

Prof. B.B. Paira , Advisor Higher Education, KBT was present as invitee.

1. To consider and adopt the complete syllabi of the subjects to be offered to the B.Tech. 7th and 8th Semester class of Chemical Engineering students under Autonomy:-

The Chairman placed the syllabi of B.Tech. 7th & 8th semester classes of Chemical Engineering students under autonomy before the members present. Members went through the syllabus of each individual paper and critically examined the content. Prof. Barman enquired about the various elective subjects that have been included in the curricula. In this context, Prof. Chatterjee explained the concepts of Departmental Electives and Free Electives to the external members. Prof. Barman pointed out some minor typographical errors in the syllabi. Prof. Chatterjee assured him that these errors will be corrected promptly.

Prof. P.S. Ray enquired about the total credits for 7th and 8th Semester courses. Prof. B.R. Saha informed him that the total credit for 7th Semester courses was 27 and that for 8th Semester was 23.

Prof. Barman suggested that in addition to Teachers from Humanities department, one faculty from Chemical Engineering Department may be deputed during Group Discussion courses for Chemical Engineering students.

Prof. Barman also enquired about the inter-relation between Project I and project II. Prof. B.R. Saha explained in details that Project II is a continuation of Project I.

Prof. P.S. Ray suggested a reference book for the courses CHEN 4132 (Industrial Safety and Hazard Analysis) and CHEN 4171 (Safety and Hazard Analysis). The name of the book suggested was "What went wrong? Case Histories of Process Plant Disasters and How They Could Have Been Avoided?" by Trevor A. Kletz. He also informed that he shall send names of more reference materials by mail within one or two days.

Prof. B.B. Paira suggested that the word "Engineering" in the first line of the syllabus of Safety and Hazard Analysis (CHEN 4171) be dropped. He suggested that some sentences and phrases of the syllabi may be modified and presented in a better manner. Prof. Saha remarked that he will go through the syllabi himself to check for any errors. Then the syllabi will be sent by mail to the external experts for a final check.

Prof. Paira also suggested that equal weightage could be fixed for presentation and viva-voce for the end-semster examination of Project I, Project II and In-plant Training. He remarked that a sentence mentioning this should be included in the syllabi of those courses.

2. Any other matter: -

Prof. B.B. Paira suggested that minimum number of experiments to be performed in the laboratory courses could be increased and it should be uniform for all laboratory courses.

The meeting ended with a vote of thanks to the chair.

Prof. S. Chatterjee
Head, Department of Chemical Engineering.

Heritage Institute of Technology , Kolkata
Department of Chemical Engineering

12.07.2018

Minutes of the 6th meeting of the Board of Studies of Chemical Engineering, held on 21.06.2018 at 3:00 P.M. in CME Conference Room

Members present :-

1. Prof. S. Chatterjee, Head of the Department, in the Chair.
2. Prof. S. Chakrabarti, External Member
3. Prof. K. Kargupta, External Member
4. Mr. D. Pahari, External Member
5. Prof. S. Vedajnananda
6. Prof. T.K. Parya
7. Prof. D. Datta
8. Prof. S. Bhattacharya
9. Prof. A. Mallick
10. Prof. D. Sen
11. Prof. A. Ghosh
12. Prof. R. Ghosh, Representative, Department of Mathematics
13. Prof. S.Saha, Representative, Department of Computer Science & Engineering

Agenda :- To consider and adopt the following:

i. 4year B. Tech Chemical Engineering Curriculum and 2year M. Tech in Renewable Energy Curriculum
ii. 1st year 1st semester syllabus of M. Tech in Renewable Energy and 1st year B. Tech Chemical Engineering Syllabus

The Chairman placed the revised curricula of four-year B.Tech. Chemical Engineering and two-year M Tech in Renewable Energy before the members present. Also the syllabi of 1st year 1st semester M Tech in Renewable Energy and 1st year B Tech Chemical Engineering were presented before the members. Members went through the curricula and syllabi and critically examined the content.

I. On B. Tech curriculum and syllabus

1. Prof. S.Chakrabarti was of the opinion that it was better to follow the AICTE prescribed credits across categories keeping in mind future NBA visits.
    - Prof. S. Chatterjee informed that credits for categories like seminar, open and professional electives have been fixed by the institute and the Department has to follow the institute directives in this matter.
2. In this respect, Mr. Pahari inquired whether it is possible to re-designate any course to match the credits.

- Prof. Chatterjee informed that it has been done for two subjects.

3. Prof. Chakrabarti asked whether there are any scopes for introducing social sciences, community service etc. in the UG curriculum.
    - Prof. Chatterjee informed that social sciences are a part of Humanities courses and community services will be taken care of by the mandatory extra-curricular credit requirements prescribed by MAKAUT.
4. Prof. Kargupta and Prof. Chakrabarti pointed out that Energy Engineering, Project Management and Process Equipment Design were missing from the UG curriculum. Prof. Kargupta also pointed out that there was only one course on Chemical Process Technology.
    - Prof. Chatterjee informed that since there was little flexibility in arranging courses according to AICTE prescribed credit limits, the curriculum had been designed in such a manner. She informed that there was an option to include Energy Engineering and Project Engineering and Project Management as elective courses.
5. The external members were of the opinion that knowledge of PFD, P&ID and Industrial Safety is very important for graduating Chemical Engineers and there should be courses which cater to this.
    - The Members resolved that the subject Process Control as present in the curriculum would be renamed as Process Control & Instrumentation and there would be a module which will cover these aspects.
    - Prof. Chatterjee informed that Industrial Safety had been designated as a professional elective and the Department would take necessary steps so that it is studied by all students.

Action Taken : Energy Engineering and Project Engineering have been included as professional electives since they could not be included under professional core course. The department will ensure that maximum students enroll for these electives.

II. On M. Tech curriculum and syllabus

1. Mr. Pahari inquired about the name of the M Tech programme.
    - Prof. Chatterjee informed him that the name (Renewable Energy) had been decided by the Institute management and not within the scope of agenda.
2. Mr. Pahari also asked whether solid waste gasification was included in the syllabus of any course.
    - The departmental members informed him that it was a part of an elective course.
3. Prof. Chakrabarti suggested that the course “Waste Management for Renewable Energy” should be renamed to include applications of renewable energy in waste management.
    - Accordingly, the members resolved that the name of the course will be “Waste Management with Renewable Energy”.
4. Prof. Chakrabarti also inquired whether there was a provision for internship in M.Tech course.
    - Prof. Chatterjee informed that there was such a scope in the course named “Term paper & Seminar”.
5. Prof. Chakrabarti also suggested that M.Tech students could be given Teaching Assistantships.

- The departmental members informed that as of now, there is no such provision in the Institute.

Action Taken : The curriculum has been modified to include the name change in No. 3.

The meeting ended with a vote of thanks to the chair. The members were also reminded of a subsequent BOS meeting possibly in November/December 2018.

Sulagna Chatterjee

Head
Chemical Engineering Deptt.
Heritage Institute of Technology
Kolkata - 700 107

Prof. S. Chatterjee
Head, Department of Chemical Engineering.

Heritage Institute of Technology , Kolkata
Department of Chemical Engineering

30.04.2019

Minutes of the 7th meeting of the Board of Studies of Chemical Engineering, held on 18.04.2019 at 2:30 P.M. in CME Conference Room

Members present :-

1. Prof. S. Chatterjee, Head of the Department, in the Chair.
2. Prof. S. Chakrabarti, External Member
3. Prof. K. Kargupta, External Member
4. Mr. D. Pahari, External Member
5. Mr. S. Mukhopadhyay, External Member
6. Prof. P. Bhattacharjee
7. Prof. S. Vedajnananda
8. Prof. T.K. Parya
9. Prof. A. K. Sen
10. Prof. S. Bhattacharjee
11. Prof. D. Datta
12. Prof. D. Sen
13. Prof. A. Ghosh
14. Prof. A. Ray Sarkar
15. Prof. A. Mallick
16. Prof. Anandalok Audhya, Representative, Department of Chemistry & Environment.

Agenda :- To consider and adopt the followings:

1. Approval of the Course Structure and Syllabi for the subjects of 2nd year B. Tech in Chemical Engineering as per revised AICTE guidelines under Autonomy.
2. Approval of the Course Structure and Syllabi for the subjects of (2nd, 3rd and 4th semester) M Tech in Renewable Energy as per revised AICTE guidelines under Autonomy.

The Chairman placed the revised curricula of 2nd year B.Tech Chemical Engineering and two- year M Tech in Renewable Energy before the members present. Also the syllabi of 2nd, 3rd and 4th semester of M Tech in Renewable Energy and 2nd year B Tech Chemical Engineering were presented before the members. Members went through the curricula and syllabi and critically examined the content.

B Tech Curricula and Syllabus Discussions

Comments from Prof. S. Chakrabarti:

1. Internship policy of AICTE and if not followed may create issues. Prof. S. Chatterjee remarked that it was an institute wide decision to assign 2 credits to industrial training. However, point is well taken and should be considered.
2. Subjects like PEDD and Fuel Technology were missing.
   Action Taken: Fuel technology has been included in Energy Engineering syllabus in 5th semester. PEDD will be included in Design and Simulation Lab syllabus in 8th semester.

3. The course 'Analytical Instruments" may be included somewhere as a laboratory elective.
   Action Taken: This has been included in 6th semester where 'Process Control Lab' has been renamed 'Analytical Instruments & Process Control Lab'.
4. Machine Design & Drawing is missing.
   Action Taken: Mechanical Engineering department will be requested to offer this as an open elective
5. Honors course from MOOCS can be included. Prof. Chatterjee pointed out that Institute has decided that actual course will be followed. Department can consider that some MOOCS courses for activity points will be made compulsory.
6. Requested to compile category wise credit division separately for 3rd to 8th sem.
   Action Taken: done

Comments from Prof. K. Kargupta:

7. Pointed out that Advanced Numerical Methods may be included in the semester after Numerical Methods & Reactor Design after CRE. CFD may be advanced to 5th Semester. Prof. D. Dutta pointed out that the elective 'Advanced Numerical Methods' can be renamed as 'Mathematical Modeling in Chemical Engineering' in 5th semester.
   Action Taken: done
8. Pointed out that Thermodynamics II should be completed before Mass Transfer I.
   Action Taken: done
9. Pointed out that Transport Phenomena may be shifted to 2nd year and Mass Transfer I and Mass Transfer II in 5th & 6th Semester.
   Action Taken: done. Syllabus for Transport Phenomena has been included in 2nd year and circulated.
10. Reactor Design can be shifted to next Semester.
    Action Taken: Reactor Design has been moved to 6th semester.

Comments from Mr. D. Pahari:

11. Waste Management & Pollution Control can be renamed as Environmental Engineering.
    Action Taken: done
12. Applicability of Project in real life should be discussed.
    Action Taken: Prof. P. Bhattacharya noted that this is an important topic that should be discussed with administration, but outside the current agenda.
13. Project Engineering should be offered compulsorily.
    Action Taken: Could not be done due to limitation of credit and elective constraints.

Comments from Mr. S. Mukhopadhyay :

14. Suggested that Industrial Instrumentation should be included in the syllabus.
    Action Taken: Will be included in syllabus in 6th semester and 7th semester in Process Control
15. Suggested that Petroleum Refinery can be included in Fuel Technology or Chemical Process Technology.
    Action Taken: Separate Elective "Petroleum Refinery Engineering" has been added in 7th semester
16. Suggested inclusion of parallel operation, system resistance curve in pumps. Pump handbook to be added as a reference.
    Action Taken : done in 3rd semester 'Fluid Mechanics' course syllabus
17. Suggested to include Law & Factory Act in Environmental Engineering if possible
    Action Taken : Will be included in Environmental Engineering course in 7th semester. Material will be provided by Mr. S. Mukhopadhyay.

M Tech Curricula and Syllabus Discussions

Overall, the curriculum and syllabus was appreciated by External Members. Few external members noted that the syllabus review needed more time.

18. Prof. S. Chakrabarti proposed to include Solar Energy in Environmental remediation and Disposal of Solar Panel in Waste Management with Renewable Energy.
Action Taken:

Miscellaneous:

Prof. S. Chatterjee informed members about the need for an interim assessment of Project I in existing curriculum for increasing regularity of students. Mr. S. Mukhopadhyay suggested that the additional project evaluation proposed in middle of 7th semester be open to all faculty for evaluation. This was seconded by Prof. K. Kargupta. Hence an unanimous decision was made to evaluate 7th semester project progress on attendance and incremental work done.

The meeting ended with a vote of thanks to the chair.

Prof. S. Chatterjee
Head, Department of Chemical Engineering.

Heritage Institute of Technology, Kolkata
Department of Chemical Engineering

22/07/2020

Minutes of the 8th meeting of the Board of Studies of Chemical Engineering, held on 16.07.2020 at 1:00 P.M. over Google meet platform

Members present :-
1. Prof. S. Chatterjee, Head of the Department, in the Chair.
2. Prof. U. Sarkar, External Member
3. Prof. K. Kargupta, External Member
4. Mr. S. Mukhopadhyay, External Member
5. Prof. P. Bhattacharjee
6. Prof. S. Vedajnananda
7. Prof. S. Bhattacharjee
8. Prof. D. Datta
9. Prof. D. Sen
10. Prof. A. Ghosh
11. Prof. A. Ray Sarkar
12. Prof. A. Mallick
13. Prof. A. Mondal, Representative, Department of Chemistry & Environment.
14. Prof. S. Saha, Representative, Department of Mechanical Engineering

Agenda :- To consider and adopt the following:

1. Approval of the Course Structure and Syllabi for the subjects of 3rd year B. Tech in Chemical Engineering as per revised AICTE guidelines under Autonomy.

2. Modifications in M. Tech syllabus and Curriculum for Renewable Energy.

The Chairman had previously circulated the revised curricula of 3rd year B.Tech Chemical Engineering and two- year M.Tech in Renewable Energy to the external members, so that they could go through them carefully and share their suggestions with the Chairman before the meeting, which would then be discussed in the meeting. All this was done keeping in mind the pandemic situation.

B. Tech Curricula and Syllabus Discussions
Comments from Prof. K. Kargupta:

1. There is a laboratory for Energy Engineering, but the theory course on the same subject is an elective course. Hence students not opting for that elective may face difficulties in the laboratory class. Prof. Sarkar suggested swapping of credits of Energy laboratory with Numerical Computations Laboratory so that some lecture class hours could be included in the Energy laboratory. But Prof. Chatterjee informed her that Numerical computations Laboratory essentially needs a lot more time and such a swapping is not practically feasible. Prof. D. Datta suggested that the theory background for the experiments in the laboratory syllabus can be covered in the laboratory class itself before starting the experiments.

   Action taken: The laboratory course name “Energy engineering Lab” has been changed to “Energy Laboratory: Theory and Practice” to incorporate the theoretical background in the

syllabus. Concerned faculty members have been requested to include the relevant theory portions in the syllabus.

Comments from Prof. D. Datta:

1. COs for Energy Laboratory and Reaction Engineering laboratory are too elaborate and not properly framed.

Action taken: Prof. Chatterjee suggested that these issues will be sorted out internally.

Comments from Prof. S. Vedajnananda:

1. Some of the suggestions shared by him for the Chemical Reaction Engineering course have been missed during compilation of the syllabus.

Action taken: prof. Chatterjee assured him that the suggestions will be duly incorporated.

Overall, the course structure and syllabi for the 3rd year B. Tech Chemical Engineering course was unanimously accepted.

M Tech Curricula and Syllabus Discussions

Comments from Prof. K. Kargupta:

1. The names Renewable Energy I and Renewable Energy II are ambiguous and do not provide insights into the course content, hence the names should be changed suitably. Prof. Chatterjee suggested the names "Non-solar Energy Engineering" for Renewable Energy I and "Solar Energy Engineering" for Renewable Energy II. Prof. S. Saha suggested that "Non Solar Renewable Energy" would be more appropriate for Renewable Energy I.

Actions Taken: Renewable Energy I has been changed to Non Solar Renewable Energy and Renewable Energy II has been changed to Solar Energy Engineering. Also in line with the names of the theoretical courses, the names of Renewable Energy I lab and Renewable Energy II lab have been changed to Non Solar Renewable Energy lab and Solar Energy Engineering lab.

2. The basket for Professional Elective II contains courses which are all based on mathematical /numerical methods.

Actions taken: The members proposed that a single course "Modeling and Analysis of Renewable Energy Systems" should incorporate all elements of existing three separate courses. This decision was adopted unanimously.

3. The course on "Thermal and Electrical Energy Fundamentals" covered very fundamental theory that should have been covered in B Tech programs.

Actions taken: Prof. D. Datta pointed out that since candidates to this M. Tech course come from Science background as well, some fundamentals have to be included, especially in Thermal energy for the 1st two modules for developing further concepts in Solar energy engineering.

4. Materials for Renewable Energy applications, Sustainable applications in Renewable Energy and Modeling& Analysis of Renewable Energy Systems could be included as core courses.

Actions Taken: Prof.Datta pointed out that this will not be possible because of the restriction of only 2 compulsory courses per semester.

5. The electives could be restructured to keep parity among options. Here, Prof. Sarkar suggested that Sustainable applications in Renewable Energy could be shifted from the basket of Professional Elective I to any other basket.

Actions taken: A modified elective basket was proposed by Prof. Chatterjee which was accepted by members. The basket is as follows:

Professional Elective I	**REEN 5141**	**REEN 5142**
Subject name	Material for Renewable Energy Application	Bio Energy
Professional Elective II	**REEN 5144**	**REEN 5145**
Subject name	Thermal and Electrical Energy Fundamentals	Modeling and Analysis of Renewable Energy System

Professional Elective III	**REEN 5241**	**REEN 5242**	**REEN 5243**
Subject name	Hydrogen and Fuel Cell Technology	Sustainable Application in Renewable Energy	Industrial Energy Analysis

Professional Elective IV	**REEN 5244**	**REEN 5245**	**REEN 5246**
Subject name	Solar Photovoltaic System Design	Sustainable Energy Conversion and Storage	Waste Management With Renewable Energy Systems

Comments from Prof. A. Mondal:

1. REEN 5202 may be renamed as Technology of Renewable Power Generation.
2. REEN 5245 may be renamed as Sustainable Energy Conversion and Storage.

Actions taken: The suggestions have been accepted and appropriate changes made.

The Chairman, Prof. Chatterjee concluded the meeting by informing the members that all suggestions that were accepted in the meeting would be incorporated and the revised Curricula and syllabi would be mailed to BOS members.

The meeting ended with a Vote of Thanks to the Chair.

Sulagna Chatterjee

Prof. (Dr.) Sulagna Chatterjee,
HOD, Chemical Engineering,
HIT, Kolkata.

Heritage Institute of Technology, Kolkata
Department of Chemical Engineering

26/03/2021

Minutes of the 9th meeting of the Board of Studies of Chemical Engineering, held on 25.03.2021 at 11:00 A.M. over Google meet platform

Members present :-
Prof. S. Chatterjee, Head of the Department, in the Chair.
Prof. U. Sarkar, External Member
Prof. K. Kargupta, External Member
Mr. S. Mukhopadhyay, External Member
Prof. S. Vedajnananda
Prof. S. Bhattacharjee
Prof. D. Datta
Prof. D. Sen
Prof. P. Sen
Prof. A. Ghosh
Prof. A. Ray Sarkar
Prof. A. Mallick
Prof. A. Mondal, Representative, Department of Chemistry & Environment.
Prof. S. Saha, Representative, Department of Mechanical Engineering

Agenda :- To consider and adopt the following:

1. Approval of the Course Structure and Syllabi for the subjects of 4th Year B. Tech in Chemical Engineering as per revised AICTE guidelines under Autonomy.

2. Modifications in M. Tech syllabus for Renewable Energy.

3. Any other modifications of syllabus with permission of Chair

The Chairman had previously circulated the revised curricula of 4th year B.Tech Chemical Engineering and two- year M.Tech in Renewable Energy to the external members, so that they could go through them carefully and share their suggestions with the Chairman before the meeting. This could then be discussed in the online meeting. All this was done keeping in mind the pandemic situation.

B. Tech Curricula and Syllabus Discussions

Comments from Prof. U.Sarkar:

1. Prof. Sarkar enquired whether the subjects under Professional Elective I, II and III were honours subjects. Prof. Chatterjee informed her that these subjects are basic subjects that are distributed among students as per their choice. Honours subjects are kept separate.

2. Prof. Sarkar also enquired about whether “Economics for Engineers” is taught by Humanities teachers or departmjental teachers. Prof. Chatterjee informed that this subject is taught by guest faculty from Humanities department.

3. Prof. Sarkar enquired whether there is any course on Instrumentation which is taught by teachers from Electrical Engineering separately. Prof. Chatterjee remarked that there is only one course on Process Control and Instrumentation which is taught by departmental teachers. Prof. P. Sen pointed out that there are courses on Instrumentation and Control Systems which are taught by teachers from Applied Electronics and Instrumentation department, but these are taken by chemical engineering students as open electives.

4. Prof. Sarkar pointed out the absence of topics on Profitability Analysis in the Project Engineering syllabus. Prof. Swami Vedajnananda remarked that he will check the syllabus and include these topics if they are absent. Prof. Sarkar also suggested that PFD and P&ID should be included in Project Engineering. Prof. A Mallick remarked that there is a provision for introducing these concepts in Industrial Process Control & Instrumentation, the Honours course in the 7th semester.

Action Taken: This has been included in CHEN 4111.

Comments from Prof. K. Kargupta:

1. Prof. Kargupta pointed out that some coverage of stability of thin films should be there in the course on Thin Film Based Microstructure Fabrication. Prof. Chatterjee assured that some basic concepts about stability will be incorporated in the syllabus.

Action taken : This has been included in the course CHEN 4121 Module 1

Comments from Mr. S. Mukhopadhyay

1. Mr. Mukhopadhyay enquired about whether there was a provision for students to undergo additional industrial training other than the compulsory internship. Prof. Chatterjee remarked that the students are free to undertake industrial training in the semester breaks and they usually do so, during the 4th semester or 5th semester breaks.

2. Mr. Mukhopadhyay enquired about whether the students undergo grooming sessions before campus interviews. Prof. Chatterjee responded that grooming sessions are mandatorily conducted in the 7th semester by the Training & Placement Department.

3. Mr. Mukhopadhyay suggested that a course on Carbon Capture Technologies can be included if no other present course addresses this topic. Prof. Vedajnananda remarked that Carbon Capture along with some other topics in Environmental Engineering can be introduced as an elective subject as there is no provision to include Carbon Capture in the present Environmental Engineering course due to its volume. Mr. Mukhopadhyay suggested that Carbon Capture can also be included in the syllabus for Energy Engineering.

4. Mr. Mukhopadhyay also suggested the inclusion of topics on Physical Separation Processes in the syllabus for Chemistry II (CHEM 2201). Prof. A. Mandal, representative of the Chemistry Department, remarked that such topics will be included after discussion with the HOD, Chemistry.

Action taken : Although this BOS considered changes primarily in 4th year syllabus, modifications in syllabus of B Tech 1st -3rd years were also adopted. Modifications have been made to CHEM 2201. Deletions and additions have been highlighted.

Overall, the course structure and syllabi for the 4th year B. Tech Chemical Engineering course was unanimously accepted.

M. Tech Syllabus Discussions

Comments from Prof. S.Saha:

1. Prof. Saha informed that students from different fields (other than Mechanical/Chemical Engineering) are not coping up well with the syllabi of Renewable Energy Courses in M.Tech 1st Semester. Accordingly he has simplified the syllabi of some courses and sent his modifications to Prof. Chatterjee. Prof. Chatterjee informed all other members about the modifications (via screen-sharing the modified portions).

Action taken : These changes have been made courses REEN 5101 REEN 5102 REEN 5202

2. Prof. Kargupta suggested the inclusion of theoretical models like Butler-Volmer equation as well as Tafel plots in the course on Fuel Cell Technology. She opined that the students can validate these models by carrying out simulation in COMSOL or other softwares. Prof. A. Ghosh remarked that these topics will be included in the syllabus.

Action taken : This has been included in the course REEN 5241 Module 3

3. Prof. Chatterjee suggests that REEN 5102 Module 4 has minor modifications in content. The changes have been highlighted in attached syllabus and were not discussed at the BOS meeting since she forgot to raise the issue. However, from first hand experience teaching this course, the changes, if accepted by all members would render the content manageable in 10 lectures.

Miscellaneous

Prof. Chatterjee informed that Dean, U.G., Prof. Subhashis Majumdar had mentioned that 3 credit courses cannot have more than 36 contact hours. But there isn't any parity across the departments regarding this matter. Prof. Chatterjee requested the faculty members to provide their opinion in this matter. Ultimately it was resolved that this matter would be taken up internally during departmental discussions.

The Chairman, Prof. Chatterjee concluded the meeting by informing the members that all suggestions that were accepted in the meeting would be incorporated and the revised Curricula and syllabi would be mailed to BOS members.

The meeting ended with a Vote of Thanks to the Chair.

Sulagna Chatterjee

Prof. (Dr.) Sulagna Chatterjee,
HOD, Chemical Engineering,
HIT, Kolkata.

Minutes of the meeting of Board of Studies (BoS)

of

Department of Civil Engineering

Minutes of the 6th Meeting of the Board of Studies,

Department of Civil Engineering

Date: 10th November, 2016 Time: 11:00 a.m.

Venue: CME 314

The Meeting started with the Head of the Department in the chair. The following external members were present in the meeting:

1. Prof. (Dr.) Sibapriya Mukherjee, Professor, JU (Nominee of AC)
2. Prof. (Dr.) Amalendu Ghosh, Ex-Prof. & Head, Dept. of CE, BESU, (External Member, Invitee)

The following faculty members from the Department of Civil Engineering were present in the meeting:

1. Prof. (Dr.) Tapas Sadhu, HOD
2. Prof. (Dr.) Sarmila Sahoo
3. Prof. Sushovan Sarkar
4. Prof. Arpita Suchismita
5. Prof. Puja Basu Chaudhuri
6. Prof.(Dr.) Subha Sankar Chowdhury
7. Prof. Prithiwish Saha
8. Prof. Rudra Prasad Roychoudhury

The following representatives from the supporting departments mentioned as below were also present in the meeting:

1. Prof. Kasturi Guha-Thakurata, Humanities.

The following Technical Assistants of the Civil Engineering Department attended the meeting as invitees:

1. Mr. Biswajit Paul
2. Mr. Bablu Panja
3. Mr. Tapan Haldar

In the Meeting the following points were discussed and accordingly the following resolutions were adopted:

1. Welcome address by Chairman:

The chairman started the meeting by welcoming all the members, representatives and invitees to the 6thBoS meeting of CE Department.

2. Self introduction of internal members:

Representative of the supporting department (Humanities) introduced themselves.

3. Confirmation of the MOM of 5th BoS:

Minutes of meeting of the 5th BOS held on 9th February, 2016 was read out and confirmed by the members.

4. Approval of the syllabi for the subjects, finalized through workshop, to be offered to the B.Tech 4th year, 1st and 2nd Semester Civil Engineering students under autonomy.

Elaborate discussions were conducted between the experts and the faculty members and it was resolved that the modified syllabi thus concluded, can be placed before the Academic Council for adoption.

5. Miscellaneous:

As there were no other points to be discussed, the meeting ended at 12:30 p.m. with vote of thanks to the Chair.

Puja Basu Chaudhuri

Prof. Puja Basu Chaudhuri
Assistant Professor, CE, HIT-K

Confirmed Tapas Sadhu

Prof. (Dr.) Tapas Sadhu
Chairman of the BoS, C.E. Department,
HOD, CE, HIT-K

Minutes of the 7th Meeting of the Board of Studies,

Department of Civil Engineering

Date: 25th June 2018 Time: 11:30 a.m.

Venue: CME 301

The Meeting started with the Head of the Department in the chair. The following external members were present in the meeting:

1. Prof. (Dr.) Sibapriya Mukherjee, Professor, JU (Nominee of AC)
2. Prof. (Dr.) Amalendu Ghosh, Ex-Prof. & Head, Dept. of CE, BESU, (External Member, Invitee)

The following faculty members from the Department of Civil Engineering were present in the meeting:

1. Prof. (Dr.) Tapas Sadhu, HOD
2. Prof. (Dr.) Sarmila Sahoo
3. Prof. Puja Basu Chaudhuri
4. Prof.(Dr.) Subha Sankar Chowdhury
5. Prof. Prithiwish Saha
6. Prof. Rudra Prasad Roychoudhury
7. Prof. Chandrima Bhadra
8. Prof. Bedshruti sen
9. Prof. (Dr.) Seema Narain
10. Prof. Dona Chatterjee
11. Prof. Debanjan Ghosh .
12. Prof.(Dr.) Monideepa paul
13. Prof.(Dr.) Kaustav Bakshi
14. Prof.(Dr.)Rajashree Lodh

The following representatives from the supporting departments mentioned as below were also present in the meeting:

1. Prof.(Dr.) Anindita Maitra Bhattacharya , Mathematics.

The following Technical Assistants of the Civil Engineering Department attended the meeting as invitees:

1. Mr. Biswajit Paul
2. Mr. Suryadeep Dasgupta

In the Meeting the following points were discussed and accordingly the following resolutions were adopted:

1. Welcome address by Chairman:

The chairman started the meeting by welcoming all the members, representatives and invitees to the 7th BoS meeting of CE Department.

2. Self introduction of internal members:

Representative of the supporting department (Mathematics) introduced themselves.

3. Confirmation of the MOM of 6th BoS:

Minutes of meeting of the 6th BOS held on 10th November, 2016 was read out and confirmed by the members.

4. The subject with code CSEN 1001 has been discussed recommended and included in the new Autonomy syllabus.

5. The code for subject PHYS 1011, MECH 1011 has been changed to PHYS 1051 and MECH 1051 respectively as per requirements.

6. New lab CSEN 1051 has been introduced in the Autonomy syllabus.

7. Two honours subject ECEN 1011 and ECEN 1061 (lab) has been introduced.

8. In 2nd semester HMTS 1202 has been introduced as per the requirement.

9. In 2nd semester, the code for CSEN 1011, ELEC 1011, MECH 1012, has been changed to CSEN 1051, ELEC 1051 and MECH 1052 respectively.

10. A new lab HMTS 1252, has been introduced in the new Autonomy syllabus.

11. Two honours subjects, HMTS 1011 and HMTS 1061 (lab) has been introduced in the 2nd semester of the syllabus.

12. Miscellaneous:

Elaborate discussions were conducted between the experts and the faculty members and it was resolved that the modified syllabi thus concluded, can be placed before the Academic Council for adoption.

As there were no other points to be discussed, the meeting ended at 1:00 p.m. with vote of thanks to the Chair.

Prof. Pritwish Saha

Assistant Professor, CE, HIT-K

Confirmed

Prof. (Dr.) Tapas Sadhu,

Chairman of the BoS, C.E. Department, and

HOD, CE, HIT-K

Minutes of the 8th Meeting of the Board of Studies,

Department of Civil Engineering

Date: 4th April 2019 Time: 11:30 a.m.

Venue: CME 301

The Meeting started with the Head of the Department in the chair. The following external members were present in the meeting:

1. Prof. (Dr.) Sibapriya Mukherjee, Professor, JU (Nominee of AC)

The following faculty members from the Department of Civil Engineering were present in the meeting:

1. Prof. (Dr.) Tapas Sadhu, HOD
2. Prof. (Dr.) Sarmila Sahoo
3. Prof. Puja Basu Chaudhuri
4. Prof.(Dr.) Subha Sankar Chowdhury
5. Prof. Prithiwish Saha
6. Prof. Rudra Prasad Roychoudhury
7. Prof. Chandrima Bhadra
8. Prof. Dona Chatterjee
9. Prof. Debanjan Ghosh .
10. Prof.(Dr.) Rajashree Lodh
11. Prof. Tushar Das

The following representatives from the supporting departments mentioned as below were also present in the meeting:

1. Prof.(Dr.) Enakshi Dinda , Chemistry Department.
2. Prof.(Dr.) Jhumpa Bhadra, Mathematics Department.
3. Prof.(Dr.) Soma Banerjee , Biotechnology Department .

The following Technical Assistants of the Civil Engineering Department attended the meeting as invitees:

1. Mr. Biswajit Paul
2. Mr. Suryadeep Dasgupta

In the Meeting the following points were discussed and accordingly the following resolutions were adopted:

1. Welcome address by Chairman:

The chairman started the meeting by welcoming all the members, representatives and invitees to the 8th BoS meeting of CE Department.

2. Self introduction of internal members:

Representative of the supporting department (Mathematics, Chemistry Department, Biotechnology Department) introduced themselves.

3. Confirmation of the MOM of 7th BoS:

Minutes of meeting of the 7th BOS held on 25th June 2018 was read out and confirmed by the members.

4. Two new subjects BIOT 2105, EVSC 2016 has been implemented in the 3rd semester of the Autonomy syllabus.

5. The code of CIVL 2111 and CIVL 2112, has been changed to CIVL 2151 and CIVL 2152 respectively in 3rd semester syllabus.

6. Two new lab papers CIVL 2153 and CIVL 2154 has been introduced in the 3rd semester of the new syllabus.

7. Two honours subjects CIVL 2113 and CIVL 2163 (lab) has been included in the 3rd semester of the new syllabus.

8. MATH 2002 has been changed to MATH 2001 and the subject name is given as "Mathematical Methods".

9. The code CIVL 2204 is given to subject "Highway and Traffic Engineering" instead of "Fluid Mechanics" in 4th semester of the syllabus.

10. The code of CIVL 2211 and CIVL 2212 has been changed to CIVL 2251 and CIVL 2252 respectively.

11. Two new labs CIVL 2253 and CIVL 2254 has been recommended in the 4th semester of the new syllabus.

12. Miscellaneous:

Elaborate discussions were conducted between the experts and the faculty members and it was resolved that the modified syllabi thus concluded, can be placed before the Academic Council for adoption.

As there were no other points to be discussed, the meeting ended at 1:00 p.m. with vote of thanks to the Chair.

Prof. Prithwish Saha

Assistant Professor, CE, HIT-K

Confirmed

Prof. (Dr.) Tapas Sadhu,

Chairman of the BoS, C.E. Department, and

HOD, CE, HIT-K

Minutes of the 9th Meeting of the Board of Studies,

Department of Civil Engineering

Date: 12th March, 2020 Time: 11:00 a.m.

Venue: CME 301

The Meeting started with the Head of the Department in the chair. The following externalmembers were present in the meeting:

1. Prof. (Dr.) Sibapriya Mukherjee, Professor, IU (Nominee of Academic Council)
2. Prof. (Dr.) Amalendu Ghosh, Ex-Prof. & Head, Dept. of CE, BESU, (External Member,Invitee)

The following faculty members from the Department of Civil Engineering were presentin the meeting:

1. Prof. (Dr.) Tapas Sadhu (Chairman and HOD)
2. Prof. (Dr.) Sarmila Sahoo
3. Prof. (Dr.) Subha Sankar Chowdhury
4. Prof. Dona Chatterjee

S. Prof. Prithwish Saha

6. Prof. RudraPrasad RoyChowdhury
7. Prof. Sourav Kar
8. Prof. Chandrima Bhadra
9. Prof. Debanjan Ghosh
10. Prof. Bedshruti Sen
11. Prof. Tushar Das
12. Prof. Biswarup Das
13. Prof. Rupam Sam

The following representative from the supporting department as below was also presentin the meeting.

1. Prof. Saptapama Roy (Representative of Humanities Department)

The following Technical Assistant of the Civil Engineering Department attended themeeting as invitee:

1. Mr. Biswajit Paul

In the Meeting the following points were discussed and accordingly the following resolutions were adopted:

1. Welcome note of Chairman:

The chairman started the meeting by welcoming all the members, representatives andinvitees to the 9* BoS meeting of CE Department.

2. Self-introduction of internal members:

Representatives of the supporting departments and the invitees introduced themselves.

3. Confirmation of the MoM of 8th BoS:

Minutes of meeting of the 8th BoS held on 4th April, 2019 was read out and confirmed by the members.

4. The name of the subject CIVL 3102 has been changed as "Design of R.C.C. Structures" instead of "Soil Mechanics II" in the 5th semester of the syllabus.

5. The name of the subject CIVL 3103 has been changed as "Environmental Engineering" instead of "Highway and Traffic Engineering" in the 5th semester of the syllabus.

6. A new subject CSEN 3106 has been discussed and recommended by CSE department which is included in the 5th semester of the new syllabus.

7. Some Professional Elective subjects specially for CE students has been recommended and included in the 5TH semester of the syllabus. The following subjects are:

a.) CIVL 3141- Foundation Engineering
b.) CIVL 3142- Rock Mechanics
c.) CIVL 3143- Offshore structures
d.) CIVL 3144- Structural Dynamics and Earthquake Engineering.

8. A mandatory course INCO 3016 (Indian Constitution and Civil Society) has been recommended and included in the 5th semester of the syllabus.

9. The codes of CIVL 3111, CIVL 3112 (lab) has been changed to CIVL 3152 and CIVL 3153 (lab) respectively.

10. A new lab CSEN 3156 has been included in the 5th semester of the new syllabus.

11. HMTS 3201 (Economics for Engineers) has been introduced in the 6th semester of the new syllabus.

12. Professional Elective II has been added for CE students in the 6th semester of the syllabus, are as follows:

a.) CIVL 3241- Air and Noise Pollution
b.) CIVL 3242- Environmental Impact Assessment
c.) CIVL 3243- Ground Improvement Techniques
d.) CIVL 3244- Advanced Structural Analysis

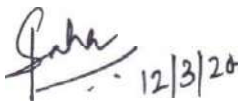
13.) Open Elective-I has been offered for CE students approved are as follows:

a.) CIVL 3221- Repair and Rehabilitation of Structures
b.) CIVL 3222- Sustainable Construction Methods

14.) The lab CIVL 3251 and CIVL 3252 has been included in the 6th semester of new syllabus and an honours subject CIVL 3214 has been introduced and approved.

15.) Miscellaneous:

As there were no other points to be discussed, the meeting ended at 1:00 p.m. with vote of thanks to the Chair.



Prof. Prithwish Saha

Assistant Professor, CE, HIT-K

Confirmed

Prof. (Dr.) Tapas Sadhu,

Chairman of the BoS, C.E. Department, and

HOD, CE, HIT-K

Minutes of the 10th Meeting of the Board of Studies,

Department of Civil Engineering

Date: 24th March 2021 Time: 11:00 a.m.

Venue: CME 301

The Meeting started with the Head of the Department in the chair. The following external members were present in the meeting:

1. Prof. (Dr.) Sibapriya Mukherjee, Professor, JU (Nominee of AC)
2. Prof. (Dr.) Amalendu Ghosh, Ex-Professor and former HOD, Dept. of CE, IIEST, Shibpur.

The following faculty members from the Department of Civil Engineering were present in the meeting:

1. Prof. (Dr.) Tapas Sadhu, HOD
2. Prof. (Dr.) Sarmila Sahoo
3. Prof. Puja Basu Chaudhuri
4. Prof.(Dr.) Subha Sankar Chowdhury
5. Prof. Prithiwish Saha
6. Prof. Rudra Prasad Roychoudhury
7. Prof. Chandrima Bhadra
8. Prof. Dona Chatterjee
9. Prof. Debanjan Ghosh.
10. Prof.(Dr.) Rajashree Lodh
11. Prof. Tushar Das

The following Technical Assistants of the Civil Engineering Department attended the meeting as invitees:

1. Mr. Biswajit Paul
2. Mr. Suryadeep Dasgupta

In the Meeting the following points were discussed and accordingly the following resolutions were adopted:

1. Welcome address by Chairman:

The chairman started the meeting by welcoming all the members, representatives and invitees to the 10th BoS meeting of CE Department.

2. Confirmation of the MOM of 9th BoS:

Minutes of meeting of the 9th BOS held on 12th March, 2020 was read out and confirmed by the members.

3. Approval of the course structure and syllabi for the subjects of 4th year B. Tech in Civil Engineering as per revised AICTE guidelines under autonomy.

4. CIVL 4101 (Water Resources Engineering) is added as an honours subject and the code recommended is CIVL 4115. This subject has been approved and introduced in the 7th semester of the new syllabus.

5. Professional Elective III has been included and the subjects decided are:

a.) CIVL 4141- Prestressed Concrete Structures

b.) CIVL 4142- Design of Tall Structures

c.) CIVL 4143- Airport, Railway and Harbour Engineering

d.) CIVL 4144- Advanced Foundation Engineering

6. Professional Elective IV has been introduced and the subjects decided are as follows:

a.) CIVL 4145- Irrigation Engineering

b.) CIVL 4146- Advanced Highway and Traffic Engineering
c.) CIVL 4147- Solid and Hazardous Waste Management
d.) CIVL 4148- Soil Dynamics and Machine Foundation

7.) Open Elective II and III has been offered to students of other departments and the subjects recommended are as follows:

A.) OPEN ELECTIVE II- a.) CIVL 4121- Project Planning and Management
b.) CIVL 4122- Introduction to Surveying

B.) OPEN ELECTIVE III- a.) CIVL 4126- An Introduction to Concrete Technology
b.) CIVL 4127- Estimation and Valuation

8.) Free Elective subjects recommended by other degree awarding departments to CE students are as follows:

a.) MECH 4123- Mechanical handling of Materials
b.) MECH 4129- Quality Control and Management
c.) CHEN 4126- Industrial Total Quality Management
d.) BIOT 4126- Biopolymer
e.) ELEC 4126- Principles of Electrical Machines

The above mentioned subjects have been approved by Civil Engineering department.

9.) In 8th semester of the syllabus, Professional Elective V has been introduced and the subjects are:

a.) CIVL 4241- Hydraulic Structures
b.) CIVL 4242- Finite Element Analysis
c.) CIVL 4243- Bridge Engineering
d.) CIL 4244- Pavement Design

10.) Subjects under Open Elective IV have been offered to other departments by CE department are as follows:

a.) CIVL 4221- Building Materials
b.) CIVL 4222- Introduction to Finite Element Methods

11.) Subjects under Free Elective offered by other departments to CE department are as follows:

a.) MECH 4221- Quantitative Decision Making
b.) MECH 4222- Modern Manufacturing Technology
c.) BIOT 4222- Non-conventional Energy
d.) CHEN 4222- Introduction to Solar and Wind Technology

All these above mentioned subjects are approved by CE department for the new syllabus.

12. Miscellaneous:

Elaborate discussions were conducted between the experts and the faculty members and it was resolved that the modified syllabi thus concluded, can be placed before the Academic Council for adoption

As there were no other points to be discussed, the meeting ended at 1:00 p.m. with vote of thanks to the Chair.

Puja Basu Chaudhuri

Prof. Puja Basu Chaudhuri
Assistant Professor, CE, HIT-K

Tapas Sadhu

Confirmed
Prof. (Dr.) Tapas Sadhu,
Chairman of the BoS, C.E. Department, and
HOD, CE, HIT-K.

Heritage Institute of Technology
Department of Computer Science & Engineering
Minutes of Board of Studies Meeting

Ref. No.: CSE/BOS/01/04 **Dated: 07.04.2021**
Venue:ICT 312 **Starting Time: 1:00PM**

Dr. Subhashis Majumder has presided over the meeting

Welcome address by the Chairman

The Chairman welcomed all the members including internal experts of supporting departments and external experts from Academics and Industry. He has received active support and guidance from everybody in transacting business of the house.

Agenda 1: Consideration of the B. Tech Final year Course structure and syllabi -
To discuss the detailed version of the new syllabus forthe 4th year B. Tech course in Computer Science and Engineering.

The Detailed syllabi of all the subjects of 4th year have been discussed by the members of the B.O.S and the following things have been proposed.

Changes proposed in the Final year B. Tech. syllabi:

1 Suggestions have been given by the external experts to include the basic idea of 3rd generation neural networks, Spike Neural Network, Rough Set, Granular Computing in the syllabus of"Soft Computing".

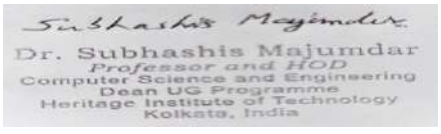
2. Suggestions have been made that the Course outcomes of "Computer Vision", "Natural Language Processing" and "Embedded System" should be modified to match with the content

3. Suggestions have been given by the external experts to introduce Keyvalue store, Column Store, Graph Database, comparison between Hadoop and MongoDB, Casandra Vs MongoDBin"NoSQL Database with MongoDB" syllabus.

4. **T**he COs of "Intelligent Web and Big Data" should be rewritten.

5. Text books should be included in "Computational Complexity" syllabus.

The non-departmental representatives, who were present, have agreed with our course structure.



(Dr.Subhashis Majumder)
Professor & HOD
Department of Computer Science & Engineering

Ref. No.: CSE/BOS/14/07 **Dated: 16.07.2020**
Online Meeting Platform: zoom **Starting Time: 4:00PM**

Dr. Subhashis Majumder has presided over the meeting

Welcome address by the Chairman

The Chairman welcomed all the members including internal experts of supporting departments and external experts from Academics and Industry. He has received active support and guidance from everybody in transacting business of the house.

Agenda 1: Consideration of the B. Tech 3rd Year Course structure and Syllabi

To discuss the detailed syllabus of 3rd year B. Tech course in Computer Science and Engineering.

The Detailed syllabi of all the subjects of 3rd year have been discussed by the members of the B.O.S and the following things have been proposed.

Changes proposed in the Final year B. Tech. syllabi:

1 The Course Outcomes of CSEN3102 should be 6 instead of 7.

2. Suggestions have been made that the Course outcomes of OOPs should be modified to match with the content

3. The algorithms to design DBA should be discussed in detail and the number of lectures should be increased in module IV of "Electronic Design Automation (ECEN3106)" syllabus.

4. The number of electives in the fifth semester would be 6 instead of 5. "Data Analysis using Python and R" should be included the course structure.

5. Suggestions have been given by the external experts to introduce some modern software tools like Jira/Agile in the "Software Engineering" syllabus of 6th semester.

6. Suggestions have been given by the external experts to include Verilog in “Electronic Design Automation Lab” (ECEN3156) syllabus of 5th semester.

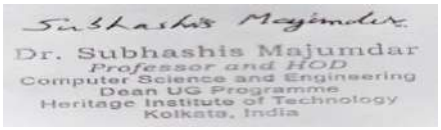
7. The COs of "Computational Geometry" should be renumbered.

8. Text books should be included in "Computational Mathematics (Math3221)" syllabus.

9. References/Reference Books should be included in "Cloud Computing (CSEN3235)" course (6th semester elective subject) and Course Educational Objectives should be removed from the syllabus.

.

The non-departmental representatives, who were present, have agreed with our course structure.



(Dr. Subhashis Majumder)
Professor & HOD
Department of Computer Science & Engineering
HITK

Ref. No.: CSE/BOS/17/04 **Dated: 19.04.2019**

Venue: ICT 312 **Starting Time: 11:00AM**

Dr. Subhashis Majumder has presided over the meeting

Welcome address by the Chairman

The Chairman welcomed all the members including internal experts of supporting departments and external experts from Academics and Industry. He has received active support and guidance from everybody in transacting business of the house.

Agenda 1: Consideration of the 2nd year B. Tech and M. Tech Course structures and syllabi

To discuss the detailed version of the new syllabus for the 2nd year B. Tech and M. Tech courses in Computer Science and Engineering.

The Detailed syllabi of all the subjects of 2nd year B. Tech and M. Tech courses have been discussed by the members of the B.O.S and the following things have been proposed.

Changes proposed in the Final year M. Tech. syllabi:

The syllabuses of the "Theory of Computation" and "Advanced Algorithms" have been modified as per the suggestions the experts.

Changes proposed in the Final year M. Tech. syllabi:

a. Suggestions have been made to modify the syllabus of "Computer Organization and Architecture".
b. Suggestions have been made to modify the syllabus of "Microprocessors and Microcontrollers".

The non-departmental representatives, who were present, have agreed with our course structure.

Dr. Subhashis Majumdar
Professor and HOD
Computer Science and Engineering
Dean UG Programme
Heritage Institute of Technology
Kolkata, India

(Dr.Subhashis Majumder)
Professor & HOD
Department of Computer Science & Engineering
HITK

Ref. No. : CSE/BOS/18/01 **Dated: 24.01.2019**

Venue: ICT 312 **Starting Time: 12:00PM**

Dr. Subhashis Majumder has presided over the meeting

Agenda 1: Welcome address by the Chairman

The Chairman welcomed all the members including internal experts of supporting departments and external experts from Academics and Industry. He has received active support and guidance from everybody in transacting business of the house.

Agenda 2: Consideration of the Course structure

The **course structure** for the 2nd Year M.Tech in computer Science and Engineering were proposed and detailed syllabus of 1st year 1st semester are discussed in annexure II and IV.

2.1. Changes proposed in the syllabus:

A. M.Tech Syllabus:

I. The lecture delivery hours of the subject "Advanced Algorithms" has been increased by 1 lecture in module IV. Total lecture hours of module IV will be 10 instead of 9. Experts have suggested increasing the lecture classes by 1 for sub topic "Recent Trends" in module IV.

II. Suggestions have been made to modify the syllabus of "Theory of computation". As per suggestions of the experts the number of lectures of the above mentioned subject is given below:

Module 1: 9 L
Module 2: 8L
Module 3: 8L
Module 4: 15L

.

The non-departmental representatives, who were present, have agreed with our course structure.

Subhashis Majumdar
Dr. Subhashis Majumdar
Professor and HOD
Computer Science and Engineering
Dean UG Programme
Heritage Institute of Technology
Kolkata, India

Dr. Subhashis Majumder
Professor & HOD
Department of Computer Science & Engineering
HITK

Ref. No. : CSE/BOS/29/06 **Dated: 02.07.2018**

Venue: ICT 310 **Starting Time: 11:00AM**

Dr. Subhashis Majumder has presided over the meeting

Agenda 1 : Welcome address by the Chairman

The Chairman welcomed all the members including internal experts of supporting departments and external experts from Academics and Industry. He has received active support and guidance from everybody in transacting business of the house.

Agenda 2 : Consideration of the Course structure

The **course structure** for the 2nd year to 4th year B.Tech and 2nd Year M.Tech in computer Science and Engineering were proposed in annexure II and IV.

2.1. Changes proposed in the Course structure

A. B.Tech Course structure:

I. The subject "Probability and Statistics" has been shifted from 5th semester to 3rd semester according to the suggestions of our external expert committee members.

II. The course "Quantum Physics" has been removed from Honours curriculum.

III. Suggestions have been made to include "Microprocessor and Microcontroller" course in the B. Tech curriculum.

IV. Suggestion has been made to combine "Computer Organization" and "Microprocessor" as a single subject.

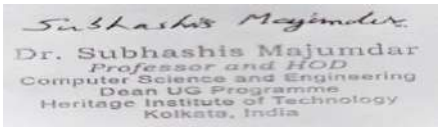
V. "Operation Research & Optimization Techniques" has been included as an Elective Paper instead of a compulsory paper.

VI. The subject name "Principles of Electronics" has been changed to "Basic Electronics".

B. M.Tech Course structure:

I. Suggestion has been made by external experts to introduce VLSI design and Real Time Embedded System as compulsory or elective paper in M.Tech course curriculum.

The non-departmental representatives, who were present, have agreed with our course structure.



Dr. Subhashis Majumder
Professor & HOD
Department of Computer Science & Engineering
HITK

Ref. No. : CSE/BOS/15/03 **Dated: 10.02.2016**

Venue: ICT 310 **Starting Time: 11:00PM**

Dr. Subhashis Majumder has presided over the meeting.

Agenda 1: Welcome address by the Chairman

The Chairman welcomed all the members including internal experts of supporting departments and external experts from Academics and Industry. He has received active support and guidance from everybody in transacting business of the house. The minutes of the previous BOS meeting held on 25.02.2015 were confirmed.

Agenda 2: Consideration of the detailed syllabi of 3rd year B. Tech courses.

2.1. Changes proposed in the detailed syllabus of 3rd year B.tech Course

A. Detailed syllabus of B.Tech 3rd Year:

I. Inclusion of Basic concepts of de-normalization and partitioning in "Database Management Systems" has been suggested by the experts.

II. Suggestion have been made to remove neural network, genetic algorithm and decision tree part from "Artificial Intelligence" course as students will study the above mentioned topics in details in the 4th year as elective subjects**.**

III. Suggestions have been made to modify the syllabus of "Web Technologies" course.

Agenda 3: Miscellaneous

A. Modification of 2nd year "Design and Analysis of Algorithms" course.

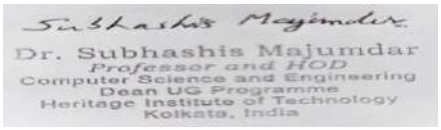
I. String matching algorithms have been incorporated to the "Design and Analysis of Algorithms" course.

II. Network flow concept has been included to the "Design and Analysis of Algorithms" course.

III. Suggestions have been made to include Bi-partite matching concept in "Design and

Analysis of Algorithms" course.

The non-departmental representatives, who were present, have agreed with our course structure.



Dr. Subhashis Majumder
Professor & HOD
Department of Computer Science & Engineering
HITK

MINUTES OF THE FIVE BOS MEETINGS OF THE ECE DEPARTMENT
2017-2021
HERITAGE INSTITUTE OF TECHNOLOGY

Minutes of the 5th. BOS meeting of ECE department held on 21.03.2017

1. The minutes of the 4th. BOS meeting was approved.
2. Leave of absence was granted to Prof. D.Mukherjee and Mr. Prantik Mahajan and other experts, who failed to turn up.
3. The meeting approved the detailed syllabus for final year UG courses under autonomy.
4. The free electives for both 7th. and 8th. semesters were approved.
5. The BOS approved the following changes to be made in the existing curricular structure:

   i)The course codes for the paper "Circuit Theory" and its corresponding laboratory course,

   "Circuit Theory Laboratory" will be changed to ECEN2105 and ECEN2115 respectively. Earlier

   the codes were ELEC2102 and ELEC2112 for theory and lab. courses respectively.

   ii) The names of the courses "Antenna Design and Microwave Engineering" (course code ECEN4101) and its laboratory course "Antenna Design and Microwave Engineering laboratory" (course code ECEN4111) will be changed in keeping with the contents of the syllabi.

   The new course names will be – RF & Microwave Engineering (code ECEN4101) and RF & Microwave Engineering Laboratory (code ECEN4111).

6. The BOS discussed in detail the structure and it was decided that the structure will be changed starting with academic session 2018-19. The final structure will be submitted to the Academic Council for approval in time.
7. The meeting ended with vote of thanks to the Chair.

Banerjee
HOD, ECE Department
Heritage Institute of Technology
Kolkata

Prof. Prabir Banerjee

Head, ECE Department &

Chairman, BOS

26.06.2018

Minutes of the sixth meeting of BOS of ECE Department held on 26.06.2018

1. The meeting started with a brief description of the background for new curriculum structure by the Chairman.
2. Structures for three courses namely - B.Tech., M.Tech.(ECE) and M.Tech.(VLSI) along with the first year syllabi for all the three were discussed in detail.
3. It was decided that some of the syllabi can be reviewed at the proper time, if required.
4. Some inter-changes vis-a vis Core courses and Elective courses were suggested for PG courses and those have been already incorporated.
5. All three curriculum structures and their corresponding syllabi for first year were approved.
6. The meeting ended with vote of thanks to the chair.

HOD, ECE Department
Heritage Institute of Technology
Kolkata

Prof.(Dr.) Prabir Banerjee

HOD, ECE Department and Chairman, BOS

Minutes of the 7th. BOS of ECE Department held on 26.04.2019

The Chairman granted leave of absence to Prof. ItiSaha Misra and Mr. Prantik Mahajan.

1. The minutes of the 6th. BOS was reviewed and approved.
2. The BOS meeting in the presence of two experts and the other members approved the syllabi of the following programmes:

   i)B.Tech.- 2nd year- both 3rd. semester and 4th. semester

   Ii)M.Tech. (ECE)- 2' year – both 3'd. Semester and 4'n. semester

   Iii)M.Tech. (VLSI) - both 3rd. Semester and 4th. Semester.

3. The industry expert, Mr. Sumit Kr. Poddar, CESC appreciated the new courses to be introduced and talked about the trends in networking security.

4. The meeting ended with vote of thanks to the Chair.

HOD, ECE Department
Heritage Institute of Technology
Kolkata

Prof. Prabir Banerjee

Head, ECE Department and Chairman of BOS, ECE

Minutes of the 8th BOS meeting of ECE Department conducted on line on 30.06.2020

1. The meeting started with review of 7th BOS meeting.
2. The 4 experts- from academics and from industry as well as the Alumni supported us very well with their comments and valuable inputs for improvement of our syllabi. The inputs/approvals are recorded.
3. Most of the faculty members gave their considered opinions and those have been recorded.
4. Prof. Monojit Mitra suggested a few alterations in the course ECEN3103 and they have been considered.
5. Mr. Sumit Poddar and Mr. Prantik Mahajan have recorded their comments for consideration. Those will be taken into account while finalizing the elective baskets for different years.
6. The meeting ended with vote of thanks to the chair.

HOD, ECE Department
Heritage Institute of Technology
Kolkata

Prof. Prabir Banerjee

Head, ECE Department

Chairman of the BOS committee of ECE Department

Minutes of the 9th BOS meeting of the ECE department of HIT held on 31.03.2021

1. The meeting was conducted with maximum precaution against pandemic situation.
2. Three BOS experts were kind enough to send their valued observations to the Chairman of the BOS in time.
3. The Chairman read out the feedbacks and comments of all the three experts- Prof. Monojit Mitra, IIEST, Sibpore, Mr. Sumit Poddar, IT consultant, CESC and Mr. Prantik Mahajan, VLSI expert in Global Foundry, Dresden.
4. It was decided that the feedbacks will be considered and incorporated as much as practicable.
5. All the BOS committee members were shown the total and final curriculum structure and syllabi.
6. The Chairman thanked all the committee members for their tremendous efforts to frame a number of new elective courses. These will help our students a lot to face the future and emerging challenges.
7. The meeting ended with vote of thanks to the Chair.

HOD, ECE Department
Heritage Institute of Technology
Kolkata

(Prof.(Dr.) Prabir Banerjee)

Head, ECE Department and

Chairman, BOS committee of the ECE department

ELECTRICAL ENGINEERING DEPARTMENT

Minutes of BOS

Department of Electrical Engineering, HIT-K

Minutes of the 10th BOS Meeting, Electrical Engineering Dept, HITK held on 7th March, 2022 at 2:30 pm.

Venue: Chamber of HOD

Members Present:-

1. Dr. Saibal Dutta, HOD,Electrical Engg. Department, HITK- In the chair
2. Mr. Sudipta Mitra
3. Ms. Emily Datta
4. Mr. Sanjay Chandra Das
5. Ms. Nabanita Chatterjee
6. Ms. Sarmistha Sinha
7. Ms. Jayita Sarkar
8. Ms. Bidisha Roy
9. Mr. Reetwik Bhadra
10. Mr. Anirban Kolay
11. Mr. Suvobrata Sil
12. Dr. Nabamita Banerjee Roy

The Meeting started in time. The chairman welcomed all the members of BOS of Electrical Engineering for attending the meeting having the following agenda.

1. Confirmation of the minutes of the 9th BOS meeting held on 5th April 2021.

2. To consider and adopt the new Honours course [prepared through Workshops under Autonomy and New AICTE Curriculum] namely **"Disaster Response Services and Technologies: HMTS 4011"** to be offered by the department of humanities for the 4th year Electrical engineering students of lateral entry only.

3. Miscellaneous with permission of chair.

The Present members of BOS were requested to go through the 4-Year UG B.Tech curriculum of Electrical Engineering Department of Heritage Institute of Technology, as per AICTE's new guidelines and syllabus of the course **HMTS 4011: Disaster Response Services and Technologies**. After going through the syllabus, the members approved the above mentioned course.

There was no other business to transact and the meeting ended with a vote of thanks to the chair.

Chairman, BOS, EE Department

SL. NO.	NAME	SIGNATURE
1	Dr. Saibal Dutta, HOD	Saibal Dutta
2	Mr. Sudipta Mitra	Sudipta Mitra
3	Ms. Emily Datta	Emily Datta
4	Mr. Sanjay Chandra Das	Sanjay Ch Das.
5	Ms. Nabanita Chatterjee	Nabanita Chatterjee
6	Ms. Sarmistha Sinha	Sarmistha Sinha
7	Ms. Jayita Sarkar	Jayita Sarkar
8	Ms. Bidisha Roy	Bidisha Roy.
9	Mr. Reetwik Bhadra	Reetwik Bhadra
10	Mr. Anirban Kolay	Anirban Kolay
11	Mr. Suvobrata Sil	Suvobrata Sil
12	Dr. Nabamita Banerjee Roy	Nabamita Banerjee Roy

Department of Electrical Engineering, HIT-K
Minutes of the 9th BOS Meeting, Electrical Engineering Dept, HITK held on 5th April, 2021 at 2:30 pm.
Venue: Online meeting platform hosted by HOD, EE

Members Present: -

1. Dr. Saibal Dutta, HOD, Electrical Engg. Department, HITK
2. Prof. Goshaidas Ray, Professor, Electrical Engg. Department, HITK
3. Prof. Swapan Kumar Ghoswami, Professor, Jadavpur University
4. Prof. Amitava Chatterjee, Professor, Jadavpur University
5. Prof. Madhubanti Maitra, Professor, Jadavpur University
6. Mr. Sanjay Chandra Das
7. Ms. Emily Datta
8. Mr. Sudipta Mitra
9. Ms. Nabanita Chatterjee
10. Ms. Sarmistha Sinha
11. Ms. Jayita Sarkar
12. Ms. Bidisha Roy
13. Mr. Reetwik Bhadra
14. Mr. Anirban Kolay
15. Mr. Suvobrata Sil

The Meeting started in time. The chairman welcomed all the members of BOS of Electrical Engineering for attending the meeting.

The senior and external expert was requested to go through the 4-Year UG B.Tech curriculum of Electrical Engineering Department of Heritage Institute of Technology and detail syllabus of 4th Year Papers. After going through the syllabus, the external member was suggested following points: -

- To implement some minor changes in 4-Year UG B.Tech curriculum (7th and 8th semester)of Electrical Engineering Department of HITK.
- To implement some minor changes in ELEC4131, ELEC4132, ELEC4121, ELEC4126, ELEC4111, ELEC4232, ELEC4241, ELEC4242 and ELEC4221.
- External expert was requested to go through the Vision and Mission statement of the department which was accepted after some minor changes.

There was no other business to transact and the meeting was ended with vote of thanks to the chair.

Saibal Dutta

Chairman, BOS, EE Department

Department of Electrical Engineering, HIT-K

Minutes of the 8th BOS Meeting, Electrical Engineering Dept, HITK held on 25th June,2020 at 3:00 pm.

Venue: Online meeting platform hosted by HOD, EE

Members Present: -

1. Dr. Saibal Dutta, HOD, Electrical Engg. Department, HITK
2. Prof. Goshaidas Ray, Professor, Electrical Engg. Department, HITK
3. Prof. Swapan Kumar Ghoswami, Professor, Jadavpur University
4. Prof. Amitava Chatterjee, Professor, Jadavpur University
5. Mr. Sanjay Chandra Das
6. Ms. Emily Datta
7. Mr. Sudipta Mitra
8. Ms. Nabanita Chatterjee
9. Mr. Sanjib Kumar Kundu
10. Ms. Sarmistha Sinha
11. Ms. Jayita Sarkar
12. Ms. Bidisha Roy
13. Mr. Reetwik Bhadra
14. Mr. Anirban Kolay
15. Mr. Suvobrata Sil

The Meeting started in time. The chairman welcomed all the members of BOS of Electrical Engineering for attending the meeting.

The Senior and external expert was requested to go through the 4-Year UG B.Tech curriculum of Electrical Engineering Department of Heritage Institute of Technology and detail syllabus of 3rd Year Papers . After going through the syllabus, the external member was suggested following points: -

- To implement some minor changes in 4-Year UG B.Tech curriculum (5th and 6th semester) of Electrical Engineering Department of HITK.
- To implement some minor changes in ELEC3101, ELEC3102, ELEC3103, ELEC3104, ELEC3141, ELEC3142 , ELEC3242 ,ELEC3201, ELEC3202, ELEC3211, ELEC3221 and ELEC3241 papers.

There was no other business to transact and the meeting was ended with vote of thanks to the chair.

Saibal Dutta

Chairman, BOS, EE Department

Department of Electrical Engineering, HIT-K

Minutes of the 7th BOS Meeting, Electrical Engineering Dept, HITK held on 29th April,2019 at 3:00 pm.

Venue: Chamber of HOD

Members Present: -

1. Dr. Saibal Dutta, HOD,Electrical Engg. Department, HITK- In the chair
2. Prof. Swapan Kumar Ghoswami, Professor, Jadavpur University
3. Prof. Amitava Chatterjee, Professor, Jadavpur University
4. Mr. Sanjay Chandra Das
5. Mr.Amitava Hatial
6. Ms. Emily Datta
7. Mr. Sudipta Mitra
8. Ms. Nabanita Chatterjee
9. Mr. Sanjib Kumar Kundu
10. Ms. Jayita Sarkar
11. Ms. Bidisha Roy
12. Mr. Reetwik Bhadra
13. Mr. Anirban Kolay
14. Mr. Suvobrata Sil

The Meeting started in time. The chairman welcomed all the members of BOS of Electrical Engineering for attending the meeting.

The External Expert was requested to go through the 4-Year UG B.Tech curriculum of Electrical Engineering Department of Heritage Institute of Technology and detail syllabus of 2nd Year Papers . After going through the syllabus, the external member was suggested following points:-

- To implement some minor changes in 4-Year UG B.Tech curriculum (3rd and 4th semester) of Electrical Engineering Department of HITK.
- To implement some minor changes in ELEC2101, ELEC2102, ELEC2103, ELEC2201, ELEC2202 and ELEC2204 papers.

There was no other business to transact and the meeting was ended with vote of thanks to the chair.

Chairman, BOS, EE Department

Department of Electrical Engineering, HIT-K

Minutes of the 6th BOS Meeting,Electrical Engineering Dept, HITK held on 27th June,2018 at 2:30 pm.

Vanue: Chamber of HOD

Members Present:-

1. Dr. Saibal Dutta, HOD,Electrical Engg. Department, HITK- In the chair
2. Prof. Swapan Kumar Ghoswami, Professor, Jadavpur University
3. Prof. Amitava Chatterjee, Professor, Jadavpur University
4. Prof. Saswati Mazumder, Professor, Jadavpur University
5. Mr. Onkar Bhattacharya, Manager, CESC Limited, Kolkata
6. Mr. Sudipta Mitra
7. Ms. Emily Datta
8. Mr. Sanjay Chandra Das
9. Ms. Nabanita Chatterjee
10. Mr. Sanjib Kumar Kundu
11. Ms. Jayita Sarkar
12. Ms. Bidisha Roy
13. Mr. Reetwik Bhadra
14. Mr. Pritam Singha Roy
15. Mr. Suvobrata Sil
16. Ms. Sudipta Sarkar

The Meeting started in time. The chairman welcomed all the members of BOS of Electrical Engineering for attending the meeting.

The External Expert was requested to go through the 4-Year UG B.Tech curriculum of Electrical Engineering Department of Heritage Institute of Technology, as per AICTE's new guidelines and syllabus of the course ELEC1001-Basic Electrical Engineering and ELEC1051- Basic Electrical Engineering Laboratory. After going through the syllabus, the external member was suggested following points:-

1. No credit to be assigned to "Industrial Training Evaluation".
2. Credit assigned to Project Stage – I should be made 3 instead of 4.
3. Credit assigned to Project Stage – II should be made 4 instead of 8.
4. Credit assigned to comprehensive viva voce to be made 2 instead of 1.
5. To compensate the credit points of Project, add two more core subjects in the structure.
6. To float more number of professional electives.
7. To implement some minor changes in Basic Electrical Engineering theory syllabus.

There was no other business to transact and the meeting was ended with vote of thanks to the chair.

Chairman, BOS, EE Department

Minutes of the meeting of Board of Studies (BOS) of Department of Information Technology

Minutes of 5th Board of Studies Meeting

Department of Information Technology

Heritage Institute of Technology, Kolkata

Date: 24th February 2017 **Time:** 3:00pm

Venue: ICT201

The fifth meeting of Board of Studies of IT Department was held on 24th February 2017 at ICT201 from 3:00pm. The list of members who attended the above said meeting is attached herewith as Annexure I.

(1) The Chairman of Board of Studies welcomes the Experts and other members.
(2) The structure of B. Tech in IT 4th year syllabus, which was approved in 2nd BOS meeting of IT department held on 8th September 2014, got modified as mentioned below (the updated structure is attached as Annexure II):
    a. The paper Seminar II (INFO4122) as included in 4th Year 1st Semester Syllabus, has been updated as Design Lab
    b. Elective paper list
(3) The detailed Syllabus of all 4th Year courses along with the course outcomes got finalized. (Attached as Annexure III).

Resolved that the above outcome of the discussion would be forwarded for consideration and approval of Academic Council.

There was no other matter to discuss. So the Chairman concluded the meeting.

Dr.TapanChakrabarti
Professor & HOD, Dept of IT
Chairman, BOS, IT

Prof. Satarupa Bagchi Biswas
DC, Dept of IT

Department of Information Technology
Heritage Institute of Technology
(An Autonomous Institute under WBUT)
(Kalyan Bharti Trust initiative)
994 Madurdaha, Chowbaga Road, Anandapur, P.O. : East Kolkata Township, Kolkata - 700 107
Phone : 2443-0454 / 56 / 57, 2443-1255-58 ● Fax : +91 33 2443-0455 ● E-mail : it@heritageit.edu
www.heritageit.edu

Minutes of 6th Board of Studies Meeting

Department of Information Technology

Heritage Institute of Technology

Date: 27th June, 2018 **Time: 10:00 A.M.**

Venue: ICT 201

The sixth meeting of Board of Studies of IT Department was held on 27th June 2018 at ICT 201 from 10.00 am. The members attended the meeting are listed in a separate sheet, please find enclosed herewith.

(1) The Chairman of Board of Studies welcomes the experts and member of BOS.

(2) Finalization of new Four-Year UG B.Tech. curriculum of IT Department under autonomy as per AICTE's new guidelines

and

Finalization of B.Tech. 1st Year Detailed Syllabus along with Course Outcomes.

(3) In 3rd Semester course structure of UG B.Tech curriculum Digital Electronics (ECEN 2104) course will be renamed as Digital Logic with unchanged course code. The Digital Electronics Lab (ECEN 2154) course will be renamed as Digital Logic Lab with unchanged course code.

(4) Operating System (INFO2204) and Operating System Lab (INFO2254) will be shifted from 4th semester to 5th semester.

(5) Computer Organization and Architecture (INFO3102) and Computer Architecture Lab (INFO3152) will be shifted from 5th semester to 4th semester.

Department of Information Technology
Heritage Institute of Technology
(An Autonomous Institute under WBUT)
(Kalyan Bharti Trust initiative)
994 Madurdaha, Chowbaga Road, Anandapur, P.O. : East Kolkata Township, Kolkata - 700 107
Phone : 2443-0454 / 56 / 57, 2443-1255-58 ● Fax : +91 33 2443-0455 ● E-mail : it@heritageit.edu
www.heritageit.edu

(6) In 5th Semester course structure of UG B.Tech curriculum Cognitive Computing (INFO3104) course and Cognitive Computing Lab (INFO3154) will be changed to Artificial Intelligence course (Lab included) with unchanged course code. Cognitive Computing course (Lab excluded) will be included in Professional Elective category of 7th semester course structure.

(7) Compiler Design, a course in Professional Elective category of 6th semester will be shifted to 5th semester in same category.

(8) Advanced Operating System, a course in Professional Elective category of 5th semester will be shifted to 6th semester in same category.

(9) E-Commerce and ERP, a new course will be included in Professional Elective category of 5th semester.

(10) Advanced Linear Algebra, a course in Open Elective category of 7th semester will be replaced by Security and Adhoc Network in same category and semester.

(11) Internet Computing, a new course will be included in Professional Elective IV category of 8th semester.

Resolved that the above outcome of the discussion would be forwarded for consideration and approval of Academic Council.

There was no other item to be discussed. So the chairman ended the meeting.

Prof. Tapan Chakraborti
HOD of IT and Chairman of BOS

Department of Information Technology
Heritage Institute of Technology
(An Autonomous Institute under WBUT)
(Kalyan Bharti Trust initiative)
994 Madurdaha, Chowbaga Road, Anandapur, P.O. : East Kolkata Township, Kolkata - 700 107
Phone : 2443-0454 / 56 / 57, 2443-1255-58 ● Fax : +91 33 2443-0455 ● E-mail : it@heritageit.edu
www.heritageit.edu

Minutes of 7th Board of Studies Meeting

Department of Information Technology
Heritage Institute of Technology

Date: 29th April, 2019 **Time: 10:30 A.M.**
Venue: ICT 212

The seventh meeting of Board of Studies of IT Department was held on 29th April 2019 at ICT 212 from 10.00 am. The members attended the meeting are listed in a separate sheet, please find enclosed herewith.

(1) The Chairman of Board of Studies welcomes the experts and member of BOS.

(2) Finalization of newly incorporated modifications in Four-Year UG B.Tech curriculum of IT Department under autonomy as per AICTE's new guidelines and Finalization of B.Tech. 2nd Year Detailed Syllabus along with Course Outcomes.

(3) In 1st and 2nd Semester course structure of UG B.Tech curriculum, both MECH1052 and MECH 1051 had 1 credit lecture listed in theory structure which was subsequently moved to lab structure of the semesters.

(4) In 3rd Semester course structure of UG B.Tech curriculum Data structure & Algorithms (INFO2101) course and Data structure & Algorithms Lab (INFO2151) will be renamed as Fundamentals of Data structure & Algorithms (Lab included) with unchanged course code.

(5) Database Management Systems (INFO3103) & Database Management Systems Lab (INFO3153), a course in 5th semester will be shifted to 4th semester with changed course code relevant to 4th Semester.

(6) Design & Analysis of Algorithms (INFO2203) & Design & Analysis of Algorithms Lab (INFO2253), a course in 4th semester will be shifted to 5th semester with changed course code relevant to 5th Semester.

(7) Computer Networks (INFO3202) & Computer Networks Lab (INFO3252), a course in 6th semester will be shifted to 5th semester with changed course code relevant to 5th Semester.

(8) Advanced Programming (INFO3101) and Advanced Programming Lab (INFO3151) a course in 5th semester will be renamed as Advanced Java & Web Technology (Lab included) and shifted to 6th Semester with changed course code relevant to 6th semester.

(9) Programming Practice Lab (INFO2155) and System Administration Lab (INFO3255) were dropped from the course structure of IT Department as suggested by external experts of BOS meeting.

(10) Real Time Systems (INFO4242) and Cloud Computing (INFO4232), courses in Elective category of 8th Semester was shifted to 7th semester in same category. Course codes were changed relevant to 7th semester.

(11) E-Commerce & ERP (INFO3132), a course in Elective category of 5th semester will be shifted to 6th semester in same category with changed course code relevant to 6th Semester.

(12) Few minor changes were suggested in detailed syllabus of some courses.

Resolved that the above outcome of the discussion would be forwarded for consideration and approval of Academic Council.

There was no other item to be discussed. So the chairman ended the meeting.

Prof. Tapan Chakraborti
HOD of IT and Chairman of BOS

Department of Information Technology
Heritage Institute of Technology
(An Autonomous Institute under WBUT)
(Kalyan Bharti Trust initiative)
994 Madurdaha, Chowbaga Road, Anandapur, P.O. : East Kolkata Township, Kolkata - 700 107
Phone : 2443-0454 / 56 / 57, 2443-1255-58 ● Fax : +91 33 2443-0455 ● E-mail : it@heritageit.edu
www.heritageit.edu

Minutes of 8th Board of Studies Meeting

Department of Information Technology

Heritage Institute of Technology

Time: 12:30 P.M.

Date: 13th July, 2020

Venue: Google Meet Online Platform

The eighth meeting of Board of Studies of IT Department was held on 13th July 2020 in Google Meet Online Platform from 12.30 pm. The members attended the meeting are listed in a separate sheet, please find enclosed herewith.

(1) The Chairman of Board of Studies welcomes the experts and member of BOS.The following points were discussed in the meeting and the suggestions made by the BOS members were recorded.

(2) Finalization of newly incorporated modifications in Third-Year(5th Semester and 6th Semester) UG B.Tech curriculum of IT Department under autonomy as per AICTE's new guidelines and Finalization of newly introduced UG Course CSBS (Computer Science & Business System)Four Year Course Structure and First Year (1st Semester and 2nd Semester) Detailed Syllabus along with Course Outcomes.

(3) Advanced Java & Web Technology (INFO3201) and Advanced Java & Web Technology Lab (INFO3251), a course in UG B.Tech (IT) curriculum will be shifted from 6th semester to 5th semester with changed course code INFO3101 and INFO3151.

(4) Computer Networks (INFO3101) and Computer Networks Lab (INFO3151), a course in UG B.Tech (IT) curriculum will be shifted from 5th Semester to 6th Semesterwith changed course code INFO3201 and INFO3251.

(5) ForDesign & Analysisof AlgorithmsLab (INFO3153) in 5th Semester UG B.Tech (IT) curriculum, Contact Hrs per Week will be changed from 3 to 4 and subsequently Credit Point will be changed from 1.5 to 2.

(6) Software Engineering (INFO3202) and Software Engineering Lab (INFO3252), a course in UG B.Tech (IT) curriculum will be shifted from 6th semester to 5th semester with changed course code INFO3104 and INFO3154.

(7) In 5th Semester course structure of UG B.Tech(IT) curriculum, Module-1 (Introduction to Software Engineering) of Software Engineering & Project Management (INFO3104) will have Iterative, Spiral and Agile life cycle models along with Introduction to DevOps as recommended byMr. Rangan Sengupta (Expert from Industry) and Mr. Aritra Das (Alumni Representative).

(8) In 5th Semester course structure of UG B.Tech (IT) curriculum, Computer Graphics (INFO3131), Distributed Database Management Systems (INFO3132) and CompilerDesign (INFO3133) will be the offered in Elective I category.Multimedia Technology & Applications (INFO3132) will be shifted from 5th Semester Elective I List to 6th Semester Elective II List with changed course code INFO3231.

(9) Artificial Intelligence (INFO3104) and Artificial Intelligence using Python Lab (INFO3154) will be removed from 5th Semester Syllabus. Artificial Intelligence (INFO3104) will be shifted to 7th semester as Honours course subject with course code (INFO4111)

(10) In 6thSemester course structure of UG B.Tech (IT) curriculum Data Analytics (INFO3202) and Data Analytics Lab (INFO3252)will be introduced.

(11) Multimedia Technology & Applications (INFO3231), E-Commerce & ERP (INFO3232) and Cryptography & Network Security (INFO3233) will be offered in Elective II category of 6thSemester curriculum of UG B.Tech (IT). Advanced Database Management System (INFO3231) will be removed from 6th Semester Elective II List. Mobile Computing (INFO3233) will be shifted from 6th Semester Elective II List to 7th Semester Elective III List with changed course code INFO4132.

(12) In 6th Semester course structure of UG B.Tech (IT) curriculum, Module-IV of E-Commerce & ERP (INFO3232) will have CRM, SCM & SRM incorporated as recommended by Mr. Aritra Das (Alumni Representative).

Department of Information Technology
Heritage Institute of Technology
(An Autonomous Institute under WBUT)
(Kalyan Bharti Trust initiative)
994 Madurdaha, Chowbaga Road, Anandapur, P.O. : East Kolkata Township, Kolkata - 700 107
Phone : 2443-0454 / 56 / 57, 2443-1255-58 ● Fax : +91 33 2443-0455 ● E-mail : it@heritageit.edu
www.heritageit.edu

(13) In 6th Semester course structure of UG B.Tech curriculum, IT Department will introduce Digital Image Processing (INFO3211) and Digital Image Processing Lab (INF03261) as Honours Course subject which was previously assigned in 7thsemester.

(14) In 6th Semester course structure of UG B.Tech (IT) curriculum, course code for Fundamentals of Circuit Theory (ELEC3121) was corrected to ELEC3221.

(15) In 6th Semester course structure of UG B.Tech (IT) curriculum, paper names for E-Commerce & ERP in Open Elective I categoryoffered by IT Department will be changed to Introduction to E-Commerce. Course Code will be same as INFO3221.

(16) First Year (1st Semester and 2nd Semester) course structure and detailed syllabus of UG B.Tech Computer Science and Business Systems (CSBS) was finalized.

(17) Course Structure and Detailed Syllabus of Computer Science and Business Systems (CSBS) for 2nd, 3rd and 4th Year will be added/ modified in future BOS of the department.

(18) Few minor changes were suggested in detailed syllabus of some courses.

Resolved that the above outcomes of the discussion will be forwarded for consideration and approval of Academic Council.

There was no other item to be discussed. So the Chairman ended the meeting with a vote of thanks.

Siuli Roy 15th July 2020

Prof. Siuli Roy
HOD of IT and Chairman of BOS

Department of Information Technology
Heritage Institute of Technology
(An Autonomous Institute under WBUT)
(Kalyan Bharti Trust initiative)
994 Madurdaha, Chowbaga Road, Anandapur, P.O. : East Kolkata Township, Kolkata - 700 107
Phone : 2443-0454 / 56 / 57, 2443-1255-58 ● Fax : +91 33 2443-0455 ● E-mail : it@heritageit.edu
www.heritageit.edu

Minutes of 9th Board of Studies Meeting
Department of Information Technology
Heritage Institute of Technology

Date: 12th April, 2021 **Time: 11:00 A.M.**
Venue: Google Meet Online Platform

The ninth meeting of Board of Studies of IT Department was held on 12th April, 2021 in Google Meet Online Platform from 11.00 a.m. The members attended the meeting are listed in a separate sheet, please find enclosed herewith.

(1) The Chairman of Board of Studies welcomes the experts and member of BOS.The following points were discussed in the meeting and the suggestions made by the BOS members were recorded.

(2) Finalization of newly incorporated modifications in Fourth-Year(7th Semester and 8th Semester) UG B.Tech curriculum of IT Department under autonomy as per AICTE's new guidelines and Finalization of UG Course CSBS (Computer Science & Business System) Course Structure and Second Year (3rd Semester and 4th Semester) Detailed Syllabus along with Course Outcomes.

(3) The detailed syllabus of Fourth Year (UG B.Tech curriculum of IT Department under autonomy) and detailed syllabus of Second Year (UG B.Tech curriculum of CSBS Department under autonomy) was presented before the BOS committee and was agreed unanimously by all members and experts of BOS committee with no modifications.

Resolved that the above outcomes of the discussion will be forwarded for consideration and approval of Academic Council.

There was no other item to be discussed. So, the Chairman ended the meeting with a vote of thanks.

Prof. Siuli Roy
HOD of IT and Chairman of BOS

Department of Information Technology
Heritage Institute of Technology
(An Autonomous Institute under WBUT)
(Kalyan Bharti Trust initiative)
994 Madurdaha, Chowbaga Road, Anandapur, P.O. : East Kolkata Township, Kolkata - 700 107
Phone : 2443-0454 / 56 / 57, 2443-1255-58 ● Fax : +91 33 2443-0455 ● E-mail : it@heritageit.edu
www.heritageit.edu

Department of Mechanical Engineering

Minutes of meetings of BOS from 2017-2021 (5th, 6th, 7th, 8th & 9th BOS) given below:

Minutes of 5th BOS Meeting of Mechanical Engineering Department Held on 19.04.17 at 2.00 P.M in the Room No. CME 107.

Dr. Sukanta Sarkar was in chair.

After welcoming of the members by the chairman, the following points were discussed and accepted.

25 members *as per list attached attended the meeting. Quorum for the meeting was in order*

1. *The minutes of 4th BOS meeting held on 15.03.2016 was confirmed without any modification.*
2. *Chairman presented the syllabi of 4th year 1st and 2nd semester courses in Mechanical Engineering which is to be followed from 2017-18 academic sessions for 4th year classes under autonomous status. After deliberations and minor modifications the syllabi were approved and confirmed unanimously and recommended to the Academic Council for adoption, by the members of BOS.*
3. *There being no other matter for discussion the meeting ended at 5.00 PM with vote of thanks to the chair.*

(Dr. Sukanta Sarkar)

Chairman, BOS & Head
Mech. Engg. Dept.

Dr. Sukanta Sarkar
Associate Professor & Head
Department of Mechanical Engineering
Heritage Institute of Technology
Kolkata - 700 107

Minutes of 6th BOS Meeting of Mechanical Engineering Department Held on 25.06.2018 at 2.00 PM at CME 103.

Dr. Sukanta Sarkar was in chair.

After welcoming of the members by the chairman, the following points were discussed and accepted.

29 *Members as per list attached attended the meeting. Quorum for the meeting was in order,*

1. *The minutes of 5th BOS meeting held on 19.04.2017 was confirmed without any modification.*
2. *The Chairman presented the curriculum structure for 4 years of B.Tech course which took into account the modifications as proposed by AICTE in its new curriculum. He also presented the syllabi of 1st and 2nd semester courses in mechanical engineering to be followed from 2018-19 academic sessions (for 1st year classes under autonomous status). After deliberations and minor modifications the curriculum structure and syllabi were approved and confirmed unanimously and recommended to the Academic Council for adoption, by the members of BOS.*
3. *The Chairman also clarified that the entire curriculum being developed through the inputs from many other departments, some need may arise in future for modification/ changes in the course codes and contents. The BOS empowered the chairman to incorporate such changes, if found necessary. The modifications made, if any, should be ratified in the next meeting of BOS.*
4. *There being no other matter for discussion the meeting ended at 5.00 PM with vote of thanks to the chair.*

25/06/18

(SUKANTA SARKAR)

Chairman, BOS of ME Dept.
& Head, Mech. Engg. Dept.

Dr. Sukanta Sarkar
Associate Professor & Head
Department of Mechanical Engineering
Heritage Institute of Technology
Kolkata - 700 107

Minutes of 7th BOS Meeting of Mechanical Engineering Department Held on 02.04.2019 at 2.00 PM at CME 105.

Dr. Sukanta Sarkar was in chair.

After welcoming of the members by the chairman, the following points were discussed and accepted.

30 Members as per list attached attended the meeting. Quorum for the meeting was in order.

1. *The minutes of 6th BOS meeting held on 25.06.2018 was confirmed with a minor modification.*
2. *The Chairman presented the modified curriculum structure for 4 years of B.Tech course which has gone through a little more changes taken into account. He also presented the syllabi of 3rd and 4th semester courses in mechanical engineering to be followed from 2019-20 academic sessions (for 2nd year classes under autonomous status). After deliberations and minor modifications the curriculum structure and syllabi were approved and confirmed unanimously and recommended to the Academic Council for adoption, by the members of BOS.*
3. *The Chairman also clarified that the entire curriculum being developed through the inputs from many other departments, some need may arise in future for modification/ changes in the course codes and contents. The BOS empowered the chairman to incorporate such changes, if found necessary. The modifications made, if any, should be ratified in the next meeting of BOS.*
4. *There being no other matter for discussion the meeting ended at 5.00 PM with vote of thanks to the chair.*

02/04/19
(SUKANTA SARKAR)

Chairman, BOS of ME Dept.
& Head, Mech. Engg. Dept.

Dr. Sukanta Sarkar
Associate Professor & Head
Department of Mechanical Engineering
Heritage Institute of Technology
Kolkata - 700 107

(B. K. Basak)

(Dipankar Sanyal)

(ACHINTYA MUKHOPADHYAY)

(S. MITRA)

Minutes of 8th BOS Meeting of Mechanical Engineering Department Held on 13.03.2020 at 2.00 PM at CME 106.

Dr. Sukanta Sarkar was in chair.

After welcoming of the members by the chairman, the following points were discussed and accepted.

__ Members as per list attached attended the meeting. Quorum for the meeting was in order.

1. *The minutes of 7th BOS meeting held on 02.04.2019 was confirmed.*
2. *The Chairman explained that the curriculum has undergone some minor modifications (in terms of paper codes etc) which were duly approved in the academic council. Accordingly he presented the latest curriculum structure for 4 years of B.Tech. course.*
3. *The Chairman clarified that while preparing the syllabus for individual papers, due consideration was given in respect of the feedbacks received from our alumni and different industry personnel who came here during the campus placement. Due care was also given in terms of GATE syllabus. This issue was discussed in our previous DAC meeting during which the faculty members concerned were urged to take note of this while they prepare the syllabus.*
4. *He then presented the syllabi of 5th and 6th semester courses in mechanical engineering to be followed from 2020-21 academic sessions (for 3rd year classes under autonomous status). After deliberations and minor modifications the curriculum structure and syllabi were approved and confirmed unanimously and recommended to the Academic Council for adoption, by the members of BOS.*
5. *Since the entire curriculum being developed was through the inputs from many other departments, some need may arise in future for modification/ changes in the course codes and contents. The BOS empowered the chairman to incorporate such changes, if found necessary. The modifications made, if any, should be ratified in the next meeting of BOS.*
6. *There being no other matter for discussion the meeting ended at 5.00 PM with vote of thanks to the chair.*

(SUKANTA SARKAR)

Chairman, BOS of ME Dept.
& Head, Mech. Engg. Dept.

Dr. Sukanta Sarkar
Associate Professor & Head
Department of Mechanical Engineering
Heritage Institute of Technology
Kolkata - 700 107

Minutes of 9th BOS Meeting of Mechanical Engineering Department Held on 24.03.2021 at 10.30 am at CME 108.

Dr. Sukanta Sarkar was in chair.

After welcoming of the members by the chairman, the following points were discussed and accepted.

31 *Members as per list attached attended the meeting. Quorum for the meeting was in order.*

1. *The minutes of 8th BOS meeting held on 13.03.2020 was confirmed.*
2. *The Chairman explained that the curriculum has undergone some minor modifications (in terms of paper codes etc) which were duly approved in the academic council. Accordingly he presented the latest curriculum structure for 4 years of B.Tech. Course.*
3. *The Chairman clarified that as it was done in the previous occasions this time also the syllabus for individual papers were made with due consideration of the feedbacks received from various stake-holders.*
4. *He then presented the syllabi of 7th and 8th semester courses in mechanical engineering to be followed from 2021-22 academic sessions (for 4th year classes under autonomous status). After deliberations and minor modifications the curriculum structure and syllabi were approved and confirmed unanimously and recommended to the Academic Council for adoption, by the members of BOS.*
5. *Since the entire curriculum being developed was through the inputs from many other departments, some need may arise in future for modification/ changes in the course codes and contents. The BOS empowered the chairman to incorporate such changes, if found necessary. The modifications made, if any, should be ratified in the next meeting of BOS.*
6. *An external BOS member suggested that there should have been parity between the number of modules in a syllabus and the number of Course Outcomes. He also suggested that question paper should be framed in such a way so that no one could attempt 100 % marks without fulfilling the entire COs.*
7. *There being no other matter for discussion the meeting ended at 3.30 PM with vote of thanks to the chair.*

24/03/2021

(SUKANTA SARKAR)

Dr. Sukanta Sarkar
Associate Professor & Head
Department of Mechanical Engineering
Heritage Institute of Technology
Kolkata - 700 107

Chairman, BOS of ME Dept.
& Head, Mech. Engg. Dept.

24/03/2021

24/03/2021

Dr. Sukanta Sarkar
Associate Professor & Head
Department of Mechanical Engineering
Heritage Institute of Technology
Kolkata - 700 107

MINUTES OF THE

BOARD OF STUDIES

DEPARTMENT OF COMPUTER APPLICATIONS

sandipan ganguly <sandipan.ganguly@heritageit.edu>

6th BoS Meeting of Computer Applications

1 message

souvik basu <souvik.basu@heritageit.edu> Thu, Mar 25, 2021 at 7:50 AM
To: Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, siuli roy <siuli.roy@heritageit.edu>, sandip chatterjee <sandip.chatterjee@heritageit.edu>
Cc: debabrata kar <debabrata.kar@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, Souvik Basu <souvik.basu@heritageit.edu>

To
Board of Studies Members,
Department of Computer Applications,
Heritage Institute of Technology, Kolkata

Dear All,

The 6th Board of Studies meeting of the Department of Computer Applications will be held on 30th March 2021 at 12:30 pm. The meeting will review and adopt:

1. 5th semester syllabus of the 3 -Years MCA course
2. 3rd and 4th semester syllabus of the 2 -Years MCA course

Kindly make it convenient to attend the meeting using the following Google Meet link: meet.google.com/afs-cqdq-ryv

PFA the draft syllabi for you reference.

HOD of the Mathematics Department is requested to attend the meeting or depute a representative.

Best Regards,
Souvik Basu

Dr. Souvik Basu
Head, Department of Computer Applications,
Heritage Institute of Technology, Kolkata, India
Mobile: +91 9903998511

2 attachments

MCA (3 Years) Course Structure and 5th Semester Detailed Syllabus, March 2021.pdf
576K

MCA (2 Years) Course Structure and 3rd and 4th Semester Detailed Syllabus, March 2021.pdf
1869K

souvik basu <souvik.basu@heritageit.edu>

MCA (3 years) 5th Semester and MCA (2 years) 3rd & 4th Semester Syllabi for your approval

17 messages

souvik basu <souvik.basu@heritageit.edu> Sun, May 23, 2021 at 3:15 PM
To: Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: debabrata kar <debabrata.kar@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, Souvik Basu <souvik.basu@heritageit.edu>

To
The Members,
Board of Studies,
Department of Computer Applications, HIT Kolkata

Dear Madam/ Sir,

Please find attached the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters. These syllabi contain the changes suggested at the BoS meeting held on 30.03.2021. Kindly drop a line of approval for these syllabi as a reply to this mail by May 25, 2020, so that these can be submitted to the Academic Council for further approval. The attachments also contain the course structures for your reference.

Best Regards,
Souvik Basu

Dr. Souvik Basu
Head, Department of Computer Applications,
Heritage Institute of Technology, Kolkata, India
Mobile: +91 9903998511

On Thu, Mar 25, 2021 at 7:50 AM souvik basu <souvik.basu@heritageit.edu> wrote:

To
Board of Studies Members,
Department of Computer Applications,
Heritage Institute of Technology, Kolkata

Dear All,

The 6th Board of Studies meeting of the Department of Computer Applications will be held on 30th March 2021 at 12:30 pm. The meeting will review and adopt:

1. 5th semester syllabus of the 3 -Years MCA course
2. 3rd and 4th semester syllabus of the 2 -Years MCA course

Kindly make it convenient to attend the meeting using the following Google Meet link: meet.google.com/afs-cqdq-ryv

PFA the draft syllabi for you reference.

HOD of the Mathematics Department is requested to attend the meeting or depute a representative.

Best Regards,
Souvik Basu

Dr. Souvik Basu
Head, Department of Computer Applications,
Heritage Institute of Technology, Kolkata, India
Mobile: +91 9903998511

2 attachments

BoS Approved, MCA (2 Years) Course Structure and Detailed Syllabus, May 2021.docx
161K

BoS Approved, MCA (3 Years) Course Structure and Detailed Syllabus, May 2021.docx
114K

---

debabrata kar <debabrata.kar@heritageit.edu> Tue, May 25, 2021 at 10:10 AM
To: souvik basu <souvik.basu@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

I hereby confirm the receipt of your mail and approve the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters,
[Quoted text hidden]
--
Debabrata Kar ,Assistant Professor
Department of MCA
Heritage Institute of Technology
Chowbaga Road,Anandapur
Post:East Kolkata Township
Kolkata-700107

---

palash ghosh <palash.ghosh@heritageit.edu> Tue, May 25, 2021 at 10:18 AM
To: debabrata kar <debabrata.kar@heritageit.edu>
Cc: souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

It is confirmed from my side.
[Quoted text hidden]

---

siuli roy <siuli.roy@heritageit.edu> Tue, May 25, 2021 at 10:19 AM
To: palash ghosh <palash.ghosh@heritageit.edu>
Cc: debabrata kar <debabrata.kar@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

I confirm the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters,

Regards,

Siuli Roy

[Quoted text hidden]

--
Siuli Roy
Professor and Head, Department of Information Technology
Heritage Institute of Technology
Kolkata - 700107

---

suparna chakraborty <suparna.chakraborty@heritageit.edu> Tue, May 25, 2021 at 10:59 AM
To: siuli roy <siuli.roy@heritageit.edu>
Cc: palash ghosh <palash.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

I hereby approve the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters,

Regards
Dr. Suparna Chakraborti
Head, Dept. of Humanities
HITK
[Quoted text hidden]

Jaya Sil <jayaiiests@gmail.com> Tue, May 25, 2021 at 10:59 AM
To: souvik basu <souvik.basu@heritageit.edu>

I fully agree with structure and details of the syllabus.
Best
Madam

[Quoted text hidden]
[Quoted text hidden]

---

subhra pramanik <subhra.pramanik@heritageit.edu> Tue, May 25, 2021 at 11:27 AM
To: suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: siuli roy <siuli.roy@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

I hereby approve the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters.

Regards
Subhra Pramanik,Assistant Professor
Department of MCA
Heritage Institute of Technology
Chowbaga Road,Anandapur
Post:East Kolkata Township
Kolkata-700107
[Quoted text hidden]

Anish Paul <antelligence@gmail.com> Tue, May 25, 2021 at 11:20 AM
To: souvik basu <souvik.basu@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Confirmed from my side.

Thanks & Regards

[Quoted text hidden]
> [Quoted text hidden]
> [Quoted text hidden]

---

subhajit rakshit <subhajit.rakshit@heritageit.edu> Tue, May 25, 2021 at 11:49 AM
To: Anish Paul <antelligence@gmail.com>
Cc: souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

I hereby confirm the receipt of your mail and approve the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters,
[Quoted text hidden]
--
Subhajit Rakshit
Assistant Professor,Dept.Of Computer Applications(MCA Dept)
Heritage Institute of Technology
Mobile No. 9231976517
Kolkata 700 107

Sipra DasBit <sdasbit@yahoo.co.in> Tue, May 25, 2021 at 12:04 PM
Reply-To: "sdasbit@yahoo.co.in" <sdasbit@yahoo.co.in>
To: Souvik Basu <souvik.basu@heritageit.edu>

Dear Dr. Basu,

I hereby confirm the said syllabi of MCA.

Best,

S. Das Bit

Sent from Yahoo Mail on Android
[Quoted text hidden]

---

sumon ghosh <sumon.ghosh@heritageit.edu> Tue, May 25, 2021 at 12:14 PM
To: subhajit rakshit <subhajit.rakshit@heritageit.edu>
Cc: Anish Paul <antelligence@gmail.com>, souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>

I hereby confirm the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters.

Regards,
Sumon Ghosh
[Quoted text hidden]

---

jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu> Tue, May 25, 2021 at 12:47 PM
To: souvik basu <souvik.basu@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

I like to Confirm and approve the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters,

Regards
Jyotirmoy Ghosh

[Quoted text hidden]
--
Dr. Jyotirmoy Ghosh
Asst. Professor
Dept. of Computer Applications
[Quoted text hidden]

---

sandipan ganguly <sandipan.ganguly@heritageit.edu> Tue, May 25, 2021 at 1:06 PM
To: souvik basu <souvik.basu@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, jayaiiests@gmail.com, jayasil@hotmail.com, samiranc@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Dear Sir,
I hereby approve the syllabi of MCA (3 years course) 5th semester and MCA (2 years course) 3rd & 4th semesters.

Best Regards,
Sandipan Ganguly.
[Quoted text hidden]
--
Sandipan Ganguly.
Asst. Prof. & Departmental Coordinator
Dept. of Computer Applications
Heritage Institute Of Technology.

Udayan Kar <udayan.kar@ericsson.com> Tue, May 25, 2021 at 5:04 PM
To: souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, "jayaiiests@gmail.com" <jayaiiests@gmail.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, "samiranc@gmail.com" <samiranc@gmail.com>, Anish Paul <antelligence@gmail.com>, siuli roy <siuli.roy@heritageit.edu>, suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: debabrata kar <debabrata.kar@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Hi Souvik,

I approve the updated syllabi shared based on the changes suggested in our last discussion @BoS meeting.

Thanks,

Udayan

[Quoted text hidden]

Disclaimer:

[Quoted text hidden]

Anish Paul <antelligence@gmail.com> Thu, Sep 30, 2021 at 12:19 AM
To: souvik basu <souvik.basu@heritageit.edu>

It just struck me that we should include a Source control management(SCM) tool like github etc in our syllabus in some form. Maybe during the practicals.

SCM skills has become the basic required skill in the industry. A developer is expected to know it from day 1.
[Quoted text hidden]
--
-- Anish

---

souvik basu <souvik.basu@heritageit.edu> Thu, Sep 30, 2021 at 6:28 AM
To: Anish Paul <antelligence@gmail.com>

That's a very good suggestion Anish!!! Even many of our students use SCM tools while doing projects. This could be definitely included in our syllabus. Requesting you to kindly remind me on our next BoS meeting.

Best Wishes,
Souvik Sir
[Quoted text hidden]

Anish Paul <antelligence@gmail.com> Thu, Sep 30, 2021 at 8:06 AM
To: souvik basu <souvik.basu@heritageit.edu>

Sure, will do that.
[Quoted text hidden]

souvik basu <souvik.basu@heritageit.edu>

Course Structure and Detailed 1st Semester Syllabus - MCA 2 Years Course

30 messages

souvik basu <souvik.basu@heritageit.edu> Mon, Jul 20, 2020 at 8:29 PM
To: Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

To
The Members,
Board of Studies,
Department of Computer Applications, HIT Kolkata

Dear Madam/ Sir,

As you might be aware, UGC and consequently AICTE has restructured the MCA as a 2 years course, erstwhile a 3 years course. In this context, the Departmental Academic Committee of Computer Applications, HIT Kolkata has designed a course structure and detailed 1st semester syllabus for the 2 years MCA course and we seek your kind approval/ comments on the same.

Attaching herewith the course structure and the 1st semester detailed syllabus. Once we receive your approval, the syllabus would be circulated to the Academic Council members for approval. I, therefore, request you to kindly send your approval/ comments as a reply to this mail by July 22, 2020.

Best Regards,
Souvik Basu

Dr. Souvik Basu
Head, Department of Computer Applications,
Heritage Institute of Technology, Kolkata, India
Mobile: +91 9903998511

MCA 2 Years Course Syllabus, July 20, 2020.pdf
598K

subhra pramanik <subhra.pramanik@heritageit.edu> Tue, Jul 21, 2020 at 9:09 AM
To: souvik basu <souvik.basu@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Approved, please proceed.
[Quoted text hidden]

sumon ghosh <sumon.ghosh@heritageit.edu> Tue, Jul 21, 2020 at 10:56 AM
To: souvik basu <souvik.basu@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty

<suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>

Approved.

On Mon, Jul 20, 2020 at 8:29 PM souvik basu <souvik.basu@heritageit.edu> wrote:
[Quoted text hidden]

---

suparna chakraborty <suparna.chakraborty@heritageit.edu> Tue, Jul 21, 2020 at 12:43 PM
To: sumon ghosh <sumon.ghosh@heritageit.edu>
Cc: souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>

Approved

Suparna Chakraborti
[Quoted text hidden]

Anish Paul <antelligence@gmail.com> Tue, Jul 21, 2020 at 5:40 PM
To: suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: sumon ghosh <sumon.ghosh@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>

Approved.

[Quoted text hidden]
[Quoted text hidden]

---

sandipan ganguly <sandipan.ganguly@heritageit.edu> Tue, Jul 21, 2020 at 6:00 PM
To: Anish Paul <antelligence@gmail.com>
Cc: suparna chakraborty <suparna.chakraborty@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>

Dear Sir,
The two year syllabus is duly approved.

Best Regards,

[Quoted text hidden]
--

Sandipan Ganguly.
Asst. Prof. & Departmental Coordinator
Dept. of Computer Applications
Heritage Institute Of Technology.

Sipra DasBit <sdasbit@yahoo.co.in> Tue, Jul 21, 2020 at 6:33 PM
Reply-To: Sipra DasBit <sdasbit@yahoo.co.in>
To: samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>
Cc: Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Dear Dr. Basu,

My specific observation is there are no labs for Software Engineering and Mobile App Development.

Although there is scope to include Software Engineering in MCAP2211 CASE Tools Lab, industry employer will definitely look for MCA students with exposure of Software Engg. Lab.

Thus, my suggestions are

1) Inclusion of Mobile App Development Lab

2) Replacing CASE Tools Lab by Software Engineering Lab

Best,

Sipra DasBit
Professor
Dept.of Computer Sc. & Tech.
IIEST, Shibpur
Howrah - 711 103,
W.B.,India
http://www.iiests.ac.in

[Quoted text hidden]
[Quoted text hidden]
[Quoted text hidden]

---

subhajit rakshit <subhajit.rakshit@heritageit.edu> Tue, Jul 21, 2020 at 8:24 PM
To: Sipra DasBit <sdasbit@yahoo.co.in>
Cc: samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Dear Sir,
I approved the syllabus.
[Quoted text hidden]
--
Subhajit Rakshit
Assistant Professor,Dept.Of Computer Applications(MCA Dept)

Heritage Institute of Technology
Mobile No. 9231976517
Kolkata 700 107

Siuli Roy <siuli.roy@gmail.com> Tue, Jul 21, 2020 at 8:40 PM
To: subhajit rakshit <subhajit.rakshit@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, Samiran Chattopadhyay <samirancju@gmail.com>, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, suparna chakraborty <suparna.chakraborty@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

The syllabus looks fine.

Best,

Siuli Roy
[Quoted text hidden]

Udayan Kar <udayan.kar@ericsson.com> Tue, Jul 21, 2020 at 11:41 PM
To: souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, "samirancju@gmail.com" <samirancju@gmail.com>, Anish Paul <antelligence@gmail.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Dear Dr. Basu,

The course structure and detailed 1st semester syllabus looks OK to me. Hence approved.

Thanks,

Udayan

[Quoted text hidden]

---

jaya sil <jayasil@hotmail.com> Wed, Jul 22, 2020 at 8:42 AM
To: souvik basu <souvik.basu@heritageit.edu>

Dear Dr. Basu,

I have gone through the course structure and detailed 1st semester syllabus which looks OK to me and I therefore approved the said syllabus.
Thanks,

Regards,

Jaya Sil
Professor

IIESTS, India

[Quoted text hidden]

---

jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu> Wed, Jul 22, 2020 at 12:42 PM
To: souvik basu <souvik.basu@heritageit.edu>

Approved
Jyotirmoy Ghosh
[Quoted text hidden]

---

palash ghosh <palash.ghosh@heritageit.edu> Thu, Jul 23, 2020 at 11:56 AM
To: souvik basu <souvik.basu@heritageit.edu>

approved..

On Mon, Jul 20, 2020 at 8:29 PM souvik basu <souvik.basu@heritageit.edu> wrote:
[Quoted text hidden]

--
PALASH GHOSH

Ast. Prof (MASTER OF COMPUTER APPLICATION)
HERITAGE INSTITUTE OF TECHNOLOGY.
Mob:-9883655375(Personal)
033-24430454/56/57/ 1255-58/1790(O)

---

debabrata kar <debabrata.kar@heritageit.edu> Thu, Jul 23, 2020 at 1:52 PM
To: souvik basu <souvik.basu@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, "samirancju@gmail.com" <samirancju@gmail.com>, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Approved
[Quoted text hidden]
--
Debabrata Kar ,Assistant Professor
Department of MCA
Heritage Institute of Technology
Chowbaga Road,Anandapur
Post:East Kolkata Township
Kolkata-700107

---

souvik basu <souvik.basu@heritageit.edu> Sat, Jul 25, 2020 at 5:46 PM
To: Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>

Cc: Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

To
The Members,
Board of Studies,
Department of Computer Applications, HIT Kolkata

Dear Madam/ Sir,

Sincere thanks to you all for approving the course structure and the 1st semester detailed syllabus of the MCA 2 years course.

Meanwhile, we have been working on the detailed syllabus of the 2nd semester and finished preparing the same. Kindly drop a line of approval for the 2nd semester detailed syllabus. Attached herewith is the course structure and detailed syllabus of 1st and 2nd semesters for your reference.

Best Regards,
Souvik Basu

Dr. Souvik Basu
Head, Department of Computer Applications,
Heritage Institute of Technology, Kolkata, India
Mobile: +91 9903998511

On Mon, Jul 20, 2020 at 8:29 PM souvik basu <souvik.basu@heritageit.edu> wrote:
[Quoted text hidden]

MCA 2 Years Course Syllabus, July 25, 2020.pdf
633K

Sipra DasBit <sdasbit@yahoo.co.in> Sat, Jul 25, 2020 at 6:27 PM
Reply-To: Sipra DasBit <sdasbit@yahoo.co.in>
To: samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>
Cc: Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

Dear Dr. Basu,

Yes, you may go ahead with the course structure.

Best,

Sipra DasBit
Professor
Dept.of Computer Sc. & Tech.
IIEST, Shibpur
Howrah - 711 103,
W.B.,India
http://www.iiests.ac.in

[Quoted text hidden]

[Quoted text hidden]

[Quoted text hidden]

---

palash ghosh <palash.ghosh@heritageit.edu> Sat, Jul 25, 2020 at 9:19 PM
To: souvik basu <souvik.basu@heritageit.edu>

APPROVED

On Mon, Jul 20, 2020 at 8:29 PM souvik basu <souvik.basu@heritageit.edu> wrote:
[Quoted text hidden]

[Quoted text hidden]

---

sandipan ganguly <sandipan.ganguly@heritageit.edu> Sat, Jul 25, 2020 at 11:35 PM
To: Sipra DasBit <sdasbit@yahoo.co.in>
Cc: samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

Dear Sir,

The structure and 1st year syllabus of the proposed 2nd year MCA course is approved by me.

Best Regards,
Sandipan Ganguly
[Quoted text hidden]
[Quoted text hidden]

---

subhra pramanik <subhra.pramanik@heritageit.edu> Sun, Jul 26, 2020 at 6:53 AM
To: sandipan ganguly <sandipan.ganguly@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

Approved.
[Quoted text hidden]

---

jaya sil <jayasil@hotmail.com> Sun, Jul 26, 2020 at 7:47 AM
To: souvik basu <souvik.basu@heritageit.edu>

Dear Dr. Souvik Basu

Consider this e-mail as approval of the 2nd semester detailed syllabus of MCA 2 years Course.

Regards,

Jaya Sil
Professor
IIESTS, India

From: souvik basu <souvik.basu@heritageit.edu>
Sent: Saturday, July 25, 2020 12:16 PM
To: Sipra DasBit <sdasbit@yahoo.co.in>; samirancju@gmail.com <samirancju@gmail.com>; Udayan Kar <udayan.kar@ericsson.com>; Anish Paul <antelligence@gmail.com>; jayasil@hotmail.com <jayasil@hotmail.com>; Siuli Roy <siuli.roy@gmail.com>; suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: Sandipan Ganguly <sandipan.ganguly@heritageit.edu>; jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>; debabrata kar <debabrata.kar@heritageit.edu>; Subhra Pramanik <subhra.pramanik@heritageit.edu>; palash ghosh <palash.ghosh@heritageit.edu>; Subhajit Rakshit <subhajit.rakshit@heritageit.edu>; sumon ghosh <sumon.ghosh@heritageit.edu>; anirban kundu <anirban.kundu@heritageit.edu>
Subject: Re: Course Structure and Detailed 1st Semester Syllabus - MCA 2 Years Course

[Quoted text hidden]
[Quoted text hidden]

---

sumon ghosh <sumon.ghosh@heritageit.edu> Sun, Jul 26, 2020 at 9:44 AM
To: subhra pramanik <subhra.pramanik@heritageit.edu>
Cc: sandipan ganguly <sandipan.ganguly@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, samirancju@gmail.com, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, jayasil@hotmail.com, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

Approved.
[Quoted text hidden]

---

debabrata kar <debabrata.kar@heritageit.edu> Sun, Jul 26, 2020 at 11:05 AM
To: souvik basu <souvik.basu@heritageit.edu>
Cc: Sipra DasBit <sdasbit@yahoo.co.in>, "samirancju@gmail.com" <samirancju@gmail.com>, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

1st year 2nd semester syllabus approved.
[Quoted text hidden]
[Quoted text hidden]

---

subhajit rakshit <subhajit.rakshit@heritageit.edu> Sun, Jul 26, 2020 at 11:30 AM
To: debabrata kar <debabrata.kar@heritageit.edu>
Cc: souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, "samirancju@gmail.com" <samirancju@gmail.com>, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

Dear Sir,
I approved the syllabus.

[Quoted text hidden]
[Quoted text hidden]

---

jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu> Sun, Jul 26, 2020 at 7:33 PM
To: souvik basu <souvik.basu@heritageit.edu>

Approved

Jyotirmoy Ghosh
[Quoted text hidden]
--
Dr. Jyotirmoy Ghosh
Asst. Professor
Dept. of Computer Applications
Heritage Institute of Technology
Kolkata

---

suparna chakraborty <suparna.chakraborty@heritageit.edu> Sun, Jul 26, 2020 at 9:17 PM
To: subhajit rakshit <subhajit.rakshit@heritageit.edu>
Cc: debabrata kar <debabrata.kar@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, "samirancju@gmail.com" <samirancju@gmail.com>, Udayan Kar <udayan.kar@ericsson.com>, Anish Paul <antelligence@gmail.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, Siuli Roy <siuli.roy@gmail.com>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

Approved.

Regards
Suparna Chakraborti
[Quoted text hidden]

Anish Paul <antelligence@gmail.com> Mon, Jul 27, 2020 at 12:12 AM
To: suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: subhajit rakshit <subhajit.rakshit@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, "samirancju@gmail.com" <samirancju@gmail.com>, Udayan Kar <udayan.kar@ericsson.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, Siuli Roy <siuli.roy@gmail.com>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

All look good to me.
Thank you sir,
-Anish

[Quoted text hidden]
> [Quoted text hidden]
> [Quoted text hidden]

Udayan Kar <udayan.kar@ericsson.com> Mon, Jul 27, 2020 at 11:17 AM
To: souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, "samirancju@gmail.com" <samirancju@gmail.com>, Anish Paul <antelligence@gmail.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, Siuli Roy <siuli.roy@gmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

Dear Dr. Basu,

I hereby approve “2nd semester detailed syllabus” also.

Thanks,

Udayan

From: souvik basu <souvik.basu@heritageit.edu>
Sent: Saturday, July 25, 2020 5:47 PM
To: Sipra DasBit <sdasbit@yahoo.co.in>; samirancju@gmail.com; Udayan Kar <udayan.kar@ericsson.com>; Anish Paul <antelligence@gmail.com>; jayasil@hotmail.com; Siuli Roy <siuli.roy@gmail.com>; suparna chakraborty <suparna.chakraborty@heritageit.edu>
Cc: Sandipan Ganguly <sandipan.ganguly@heritageit.edu>; jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>; debabrata kar <debabrata.kar@heritageit.edu>; Subhra Pramanik <subhra.pramanik@heritageit.edu>; palash ghosh <palash.ghosh@heritageit.edu>; Subhajit Rakshit <subhajit.rakshit@heritageit.edu>; sumon ghosh <sumon.ghosh@heritageit.edu>; anirban kundu <anirban.kundu@heritageit.edu>
Subject: Re: Course Structure and Detailed 1st Semester Syllabus - MCA 2 Years Course

To

[Quoted text hidden]

Disclaimer:

[Quoted text hidden]

Siuli Roy <siuli.roy@gmail.com> Tue, Jul 28, 2020 at 3:11 PM
To: Udayan Kar <udayan.kar@ericsson.com>
Cc: souvik basu <souvik.basu@heritageit.edu>, Sipra DasBit <sdasbit@yahoo.co.in>, "samirancju@gmail.com" <samirancju@gmail.com>, Anish Paul <antelligence@gmail.com>, "jayasil@hotmail.com" <jayasil@hotmail.com>, suparna chakraborty <suparna.chakraborty@heritageit.edu>, Sandipan Ganguly <sandipan.ganguly@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, Subhra Pramanik <subhra.pramanik@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, Subhajit Rakshit <subhajit.rakshit@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, anirban kundu <anirban.kundu@heritageit.edu>

Dear Prof. Basu,

I approve the course structure and detailed syllabus for 2 year MCA course.

Best Regards,

Siuli Roy
[Quoted text hidden]

---

sandipan ganguly <sandipan.ganguly@heritageit.edu> Mon, Aug 3, 2020 at 4:24 PM
To: souvik basu <souvik.basu@heritageit.edu>

Dear Souvik da,

Please send me the .docx version of this file for record keeping.

Best Regards,
Sandipan.
[Quoted text hidden]
--
Sandipan Ganguly.
Asst. Prof. & Departmental Coordinator
Dept. of Computer Applications
Heritage Institute Of Technology.

---

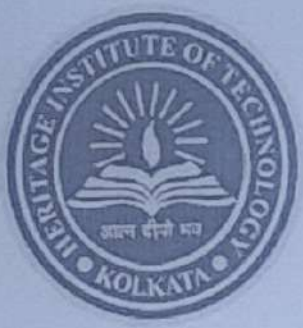
souvik basu <souvik.basu@heritageit.edu> Thu, May 20, 2021 at 8:33 PM
To: jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>
Cc: Souvik Basu <souvik.basu@heritageit.edu>

Dr. Souvik Basu
Head, Department of Computer Applications,
Heritage Institute of Technology, Kolkata, India
Mobile: +91 9903998511

---------- Forwarded message ---------
From: **souvik basu** <souvik.basu@heritageit.edu>
Date: Sat, Jul 25, 2020 at 5:46 PM
Subject: Re: Course Structure and Detailed 1st Semester Syllabus - MCA 2 Years Course
[Quoted text hidden]
[Quoted text hidden]

MCA 2 Years Course Syllabus, July 25, 2020.pdf
633K

BoS Approved



Master of Computer Application

MCA PROGRAMME

Release Month & Year : July 2019

Course Content

1st Year 1st Semester

Paper Name: INTRODUCTION TO PROGRAMMING					
Paper Code: MCAP1101					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

Introduction: History of Computing, Evolution of Programming Languages, Compilers, Familiarization with UNIX.

Problem Solving Method: Algorithm, Flowchart, Problem-Solving Methodology- Tools, Pseudocode.

Overview of C language: C Standards, Structure of a C Program, C Libraries, Steps of Compilation of a C Program.

Expressions: Basic Data Types, Variables, Type Qualifiers, Storage Class Specifiers, Variable Scopes, Constants, Operators, Operator Precedence, Expression Evaluation, Type Conversion in Expressions, Type Casting.

Console I/O: Reading and Writing Characters, Reading and Writing Strings, Formatted Console I/O.

Module II [10L]

Control Statements: Selection Statements (if, switch-case), Iteration Statements (for loop, while loop, do-while loop), Jumping Statements (return, goto, break, exit, continue).

Function: Functions and Modular Programming, General Form, Function Prototypes, Library Functions, Parameter Passing Mechanisms, Storage Classes, Recursive function.

Module III [10L]

Arrays and Strings: Single Dimension Arrays, Two Dimension Arrays, Multidimensional Arrays, Strings, Arrays of Strings, String Library Functions.

Pointer: Pointers and Memory Addressing. Pointer Variables, Pointer Arithmetic, Pointer Expressions, Pointers and Arrays, Functions and Pointers, Dynamic Memory Allocation, Command Line Arguments.

Module IV [10L]

Structures, Unions, Enumerations: Structures, Arrays of Structures, Structure and Pointers, Unions, Bit Fields, Enumerations, typedef keyword.

File I/O: Concept of Files, File operations, Text Files and Binary Files.

The Preprocessor: Preprocessor Directives, Macros, File Inclusion.

Text Books:

1. Programming with C - Gottfried, TMH.
2. Programming in C - Balagurusamy, Tata McGraw Hill.
3. Programming in C – Reema Thareja, Oxford University Press.

Reference Books:

1. C Programming Made Easy - Raja Ram, SCITECH.
2. The C Programming Language - Kernighan Ritchie, PHI.

Subject Name: PROGRAMMING LAB					
Paper Code: MCAP1111					
Contact hrs per week:	**L**	**T**	**P**	**Total**	**Credit Point**
	0	**0**	**4**	**4**	**3**

Programs related to

- Control Structures
- Array (1-d, 2-d)
- Functions
- Dynamic Memory Allocation
- String Handling
- Structures, Union
- File Handling

Paper Name: MATHEMATICAL FOUNDATIONS					
Paper Code: MCAP1102					
Contact hrs per week:	**L**	**T**	**P**	**Total**	**Credit Point**
	3	**1**	**0**	**4**	**4**

Module I [10L]

Mathematical Logic: Propositions, Connectives, Conditionals and Biconditionals, Well-formed formulas (WFF), Tautologies, Equivalence formulas, Law of duality, Normal Forms, Predicate Calculus, Free and Bound variables.

Abstract Algebra: Set, Relations and Well-ordering principle, Functions. Algebraic

S. Chattopadhyay

structures, Semi-group, Group, Subgroup, Order of a group, Cyclic-group, Homomorphism. Application of residue arithmetic in computer.

Module II [10L]

Graph Theory: Basic Concepts of Graphs-definitions, Walk, Trail, Path, Isomorphic graph, Connected graph, Euler graph. Trees, Forest, Adjacency and Incidence Matrices, Minimum Spanning Tree (Prim's and Kruskal's Algorithm), Shortest Path (Dijkstra's Algorithm),Planar Graph.Storage representation and manipulation of graphs, List-structures. Various applications of Graph Theory in Computer Science.

Module III [10]

Permutation and Combination: Concepts of Permutations and Combinations, Inclusion-Exclusion Principle, Pigeon-hole principle, Euclidean algorithm for Linear Diophantine Equation, Basic Counting Concepts. Formula derangement, Restrictions on relative positions.

Generating- function and Recurrence relation: Generating-function, Recurrence-relations, Linear recurrence-relations with constant coefficients, Solution by Generating-function.

Module IV [10]

Boolean algebra: Definition of Boolean algebra, Boolean function Simplification. SOP and POS forms.

Mathematical Computing: Finite Automata – definition and construction, DFA, NFA, NFA to DFA conversion, State-minimization, Mealy M/C, Moore M/C, problem and solution.

Definition of Grammars: Unrestricted grammar, Context-sensitive grammar, Context-free grammar, Regular grammar.

Text Books:

1. Discrete Mathematics and Its Applications . KH Rosen ,TMH.

2. Elements of Discrete Mathematics . C.L Liu , McGraw Hill .

3. Discrete Mathematical Structure - Kolman, Busby and Ross , PHI.

Reference Books:

1. Discrete Mathematics Theory, Problems and Solutions – Dipendra Nath Ghosh , Academic Publishers.

2. Graph Theory with Application to Engineering and Computer Science—N. Deo. PHI.

3. Theory of Computer Science –K.L.P Mishra and N.Chandrashekharan , PHI.

Amish Pal

S. Chattopadhyay

Paper Name: Numerical Analysis					
Paper Code: MCAP1103					
Contact hrs per week:	L	T	P	Total	Creditpoints
	3	1	0	4	4

Module I [8L]

Errors in Numerical Computations: Computing Arithmetic, Sources of Errors, Significant Figures: Absolute, Relative and Percentage Errors, Significant Digits, Generation and Propagation of Round-off Error.

Solutions to algebraic and transcendental equations: Introduction, Bisection Method , Secant Method , Regula Falsi Method , Newton Raphson Method , Iterative or Successive Approximation Method , Comparison of Iterative Methods, Convergence of different methods, Algorithm and Flowchart of different methods.

Module II [10L]

Interpolation and Polynomial Approximation: Introduction, Lagrange's Interpolation , Finite Difference Operators, Error in Interpolating polynomial, Interpolation Techniques Based on Finite Differences , Forward and Backward Differences, Newton's Forward Difference Interpolation Method, Newton's Backward Difference Interpolation Method, Inverse Interpolation .

Module III [12L]

Numerical Differentiation and Integration: Introduction, Differentiation based on Newton's Forward and Backward Interpolation Formula, Different Operators, Trapezoidal Rule, Simpson's 1/3rd Rule, Simpson's 3/8th Rule,Errors in Integration Formulae, Algorithm and Flowchart of different methods.

Solutions to System of Linear Equations: Introduction, Gauss Elimination Method, Gauss Jordan Elimination Method, Triangularization or LU Decomposition Method, Jacobis Iteration Method, Gauss Seidel Iterative Method, Comparison and choice of Methods, Eigen-Value problem, Algorithm of different methods.

Module IV [10L]

Solutions to Ordinary Differential Equation: Introduction, Taylor Series Method, Euler's Method, Modified Euler's Method, Runge Kutta Method, Algorithm of different methods.

Approximation theory: Least Square Approximation.

Curve Fitting: Curve Fitting using Least Square Method – Linear, Quadratic, Cubic, and Exponential.

Text Books:

1. Introductory Numerical Analysis – Dutta and Jana, ShreedharPrakashani.
2. Introductory Methods of Numerical Analysis - S. S. Sastry, PHI

Reference Books:

1. Computer Oriented Numerical Methods - V. Rajaraman, PHI

S. Chattopadhyay

2. Numerical Analysis and Computational Procedures - S. Ali Mollah, Books & Allied Ltd.
3. Numerical Mathematical Analysis - James B. Scarborough, Oxford &Ibh.

Paper Name: ACCOUNTING AND MANAGEMENT CONTROL					
Paper Code: HTMS1101					
Contact hrs per week:	L	T	P	Total	Creditpoints
	3	0	0	3	3

Module I [8L]

i. Double entry system of book keeping – Basic accounting equation
ii. Meaning of assets, liabilities, equity, revenue, expenses
iii. Accounting concepts and conventions
iv. Inventory valuation (FIFO, LIFO, Simple Average, Weighted Average method)
v. Accounting concept and methods of computing depreciation (SLM, WDV)

Module II [12L]

i. Accounting Cycle - Journal, Ledger and Trial Balance
ii. Preparation of Final Accounts with common adjustments for public limited companies.

Module III [12L]

i. Objectives and importance of Cost Accounting
ii. Basic cost concepts - cost classification; allocation; apportionment; absorption,
iii. Break-even analysis
iv. Decisions based on marginal costing – relevant cost; make or buy; product mix
v. Standard costing – Material, Labour, Sales.
vi. Budgets – meaning; benefits, types.

Module IV [8L]

i. Management control system-nature, characteristics.
ii. Understanding the concept of strategy, goals, key variables.
iii. Responsibility centers, revenue centers, expense centers, profit centers-concepts.
iv. Transfer pricing – concept and methods
v. Organizational relationships in control - hierarchy, span of control.
vi. Management Reporting System - need, essentials of an effective MR system, MBO.
vii. Budgeting as a tool for management control
viii. Management Control of: Service Organizations; Non-Profit Organizations; MNCs; Projects

Text Books:

1. Management: A Systems Approach - Koontz and O'Donnel, TMH.
2. Financial Accounting - PC Tulsian, Pearson Education.
3. Management Accounting - I.M. Pande, VIKAS.

S. Chattopadhyay

Reference Books:

1. Management Techniques: A Practical Guide - John Argenti.
2. Management: A Global Perspective - Weihrich and Koontz, TMH.
3. Management Accounting - Khan & Jain, TMH.

Paper Name: ORAL AND WRITTEN COMMUNICATIONS					
Paper Code: HTMS1102					
Contact hrs per week:	L	T	P	Total	Creditpoints
	3	0	0	3	3

Module I [10L]

Communication Skill
Definition, nature & attributes of Communication
Process of Communication
Models or Theories of Communication
Types of Communication
Levels or Channels of Communication
Barriers to Communication

Module II [10L]

Business Communication- Scope & Importance
Writing Formal Business Letters
Writing Reports
Organizational Communication: Agenda & minutes of a meeting, notice, memo, circular
Project Proposal
Technical Report Writing
Organizing e-mail messages
E-mail etiquette
Tips for e-mail effectiveness

Module III [10L]

Language through Literature

Modes of literary and non-literary expressions
Excerpts from literary texts (prose, verse and drama)
Using language for communication at various cultural and social settings
Descriptive, narrative and expository writing
Writing with a purpose-
Writing essays/articles—logical organization of thoughts

Module IV [10L]

Communication skills at Work

Communication and its role in the workplace

Benefits of effective communication in the workplace

S. Chattopadhyay

Common obstacles to effective communication

Approaches and Communication techniques for multiple needs at workplace: persuading, convincing, responding, resolving conflict, delivering bad news, making positive connections.

Text Books:

1. Theories of Communication: A Short Introduction, Armand Matterlart and Michele Matterlart, Sage Publications Ltd.
2. Professional Writing Skills, Chan, Janis Fisher and Diane Lutovich. San Anselmo, CA: Advanced Communication Designs.
3. Hauppauge, Geffner, Andrew P. Business English, New York: Barron's Educational Series.

Reference Books:

1. Writing and Speaking at Work: A Practical Guide for Business Communication, Edward P.Bailey, Prentice-Hall.
2. Business and Administrative Communication, Kitty O. Locker, McGraw-Hill/ Irw
3. Intercultural Business Communication, Lillian Chaney and Jeanette Martin, Prentice Hall.

Subject Name: COMMUNICATIONS LAB					
Paper Code: HMTS 1112					
Contact hrs per week:	**L**	**T**	**P**	**Total**	**Credit Point**
	0	**0**	**4**	**4**	**3**

Module 1

Formal verbal communication:

- Introduction to formal verbal communication, Interpersonal Skills & Public Speaking: Building Positive Relationships, Focusing on Solving Problems, Time Management, Dealing with Criticism: Offering Constructive Criticism, Responding to Criticism – Managing Conflict: Approaches to Conflict, Resolving Conflict
- Conversational skills in the business scenario: One-to-one and Group communication, Gender and Culture Sensitivity, Etiquette, Sample Business Conversation, Telephonic Conversation

Module II

S. Chattopadhyay

Presentation skills

- Speech Purposes - General: Informative Speeches, Persuasive Speeches, Entertaining Speeches, Methods of Speaking: Speaking from a Manuscript, Speaking from Memory, Impromptu Delivery, Extemporaneous Delivery, Analyzing the Audience, Nonverbal Dimensions of Presentation
- Organising the Presentation: the Message Statement, Organising the Presentation: Organizing the Speech to Inform, The Conclusion, Supporting Your Ideas – Visual Aids: Designing and Presenting Visual Aids, Selecting the Right Medium, Post-presentation Discussion

Module III

Group Discussion

Introduction to Group Communication

Factors in Group Communication, Status – Group Decision Making: Reflective Thinking, Brainstorming, The Planning Process, Strategies for Successful GDs, Role of Social Awareness (Newspapers, Magazines, Journals, TV News, Social Media), Body Language, Logical Argument, Practice GDs

Module IV

Job Application and Personal Interview

- Job Application Letter: Responding to Advertisements and Forced Applications, Qualities of Well-Written Application Letters: The You-Attitude, Length, Knowledge of Job Requirement, Reader-Benefit Information, Organization, Style, Mechanics – Letter Plan: Opening Section, Middle Section, Closing Section
- Resume and CV: Difference, Content of the Resume – Formulating Career Plans: Self Analysis, Career Analysis, Job Analysis, Matching Personal Needs with Job Profile – Planning your Resume – Structuring the Resume: Chronological Resume, The Functional Resume, Combination Chronological and Functional Resume – Content of the Resume: Heading, Career Goal or Objectives, Education, Work Experience, Summary of Job Skills/Key Qualifications, Activities, Honors and Achievements, Personal Profile, Special Interests, References
- Interviewing: Types of Interviews, Format for Interviews: One-to-one and Panel Interviews, Employment Interviews, Frequently Asked Questions, Dress Code, Etiquette, Questions for the Interviewer, Simulated Interviews

References

1. Ludlow, R., and Panton, F., "The Essence of Effective Communication", Prentice Hall of India Pvt. Ltd. 1995.
2. Menzel, D.H., Jones, H.M., Boyd, L.G., "Writing a Technical Paper". McGraw Hill, 1961.

S. Chattopadhyay

3. Strunk, W., White, E. B., "The Elements of Style", 3rd Edition, McMillan, 1979.
4. Munter, M., "Business Communication: Strategy and Style" Prentice Hall, New Jersey, 1987.
5. Carter, R. And Nunan, D. (Eds). The Cambridge guide to Teaching English to Speakers of Other Languages. CUP. 2001
6. Edward P. Bailey, Writing and Speaking At Work: A Practical Guide for Business Communication, Prentice Hall, 3rd Ed., 2004
7. Munter, M., Guide to Managerial Communication: Effective Business Writing and Speaking, Prentice Hall, 6th Ed., 1999
8. Raman, M. and Sharma, S., Technical Communication: Principles and Practice, 2nd Ed., 2011

1st Year 2nd Semester

Subject Name: DIGITAL LOGIC AND COMPUTER ARCHITECTURE					
Paper Code: MCAP 1201					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

Data and number representation- binary-complement representation, BCD-ASCII, conversion of numbers from one Number system to the other, (r-1)'s & r's complement representation, binary arithmetic.
Structure of a digital machine (VON-Neumann architecture), Logic gates, basic logic operations, truth tables, Boolean expression, simplification. Karnaugh Map, Quine McClusky's Method.

Module II [10L]

Combinational Circuits *:* Adder and Subtractor circuits; Applications and circuits of Encoder, Decoder, Multiplexer, De-Multiplexer and Parity Generator.

Sequential Circuits - Basic memory element - S-R, J-K, D and T flip flops; Registers and counters and their design, Irregular counter, State table and state transition diagram;

Module III [10L]

Memory – Basic concepts, RAM, ROM – different types, Characteristics, Memory design (Linear addressing, interleaved memory) Cache memories, Performance (memory interleaving, hit rate etc.), Memory hierarchy - virtual memory – address translation, Secondary memories

Module IV [10L]

Central processing unit, instruction format, addressing mode, stacks and handling of interrupts, Pipeline & vector processing, Computer arithmetic. Input - output organization.

Text Books:
1. Digital Logic and Computer Design - M. Morris Mano, Pearson.
2. Computer System Architecture-Morris Mano, PHI.
3. Digital Logic Design, MansafAlam-Bashir Alam, PHI.

Reference Book:
1. Computer Organization – C. Hamacher, Z. Vranesik, S. Zaky, McGraw Hill.
2. Computer Architecture and Organization – John P. Hayes, McGraw Hill.
3. Digital Design: Basic Concepts and Principles - Mohammad A. Karim, CRC Press.

S. Chattopadhyay

Subject Name: Digital Logic and Computer Architecture Lab					
Paper Code: MCAP 1211					
Contact hrs per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

1. Realization of AND, OR, NOT, NAND, XOR gates using respective chips. Design AND, OR gates using basic design elements (Diod, Resistance, Transistor etc.)
2. Implementation of AND, OR, NOT, XOR gates using NAND Gate as a Universal Gate. Realize the following equation using only minimum number of NAND gates. Y = B'C'+ A'BC
3. Design Half Adder & Full Adder Circuits using basic Gates.
4. Design Half Subtractor & Full Subtractor Circuits using basic Gates.
5. Design Adder-Subtractor Composite circuit.
6. Design and implementation of 16 bit odd/even parity checker / generator using IC74180.
7. Design and implementation of encoder and decoder using logic gates and study of IC7445 and IC74147
8. Realization of 4:1 & 2:1 MUX Chips. Implement a 8:1 MUX using 4:1 MUXs.
9. Design S-R, D, J-K Flipflop.
10. Design and implementation of 3-bit synchronous up/down counter
11. Horizontal expansion of RAM.
12. Vertical expansion of RAM.

Paper Name: DATA STRUCTURES					
Paper Code: MCAP1202					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [8L]

Introduction: Concepts: Datatype and data structure, Abstract Data Type. Classification,

S. Chattopadhyay

Algorithms concepts. Analysis: space and time analysis of algorithms – Big O, Θ, Ω notations.

Array: Different representations – row major, column major. Sparse matrix – its implementation and applications. Array representation of polynomials.

Linked List: Singly linked list, circular linked list, doubly linked list, linked list representation of polynomial and applications.

Module II [8L]

Stack and Queue: Stack - implementation using array and linked list. Applications.

Queue, circular queue, deque - implementation using array and linked list. Applications.

Recursion: Principles of recursion – use of stack, differences between recursion and iteration, tail recursion. Applications - The Tower of Hanoi.

Module III [12L]

Graphs: Graph representations / storage – using adjacency matrix, adjacency list.

Trees: Basic Terminologies, tree representation – using array and linked list. Binary trees: traversal (pre-, in-, post-, level- order). Threaded binary trees. Huffman trees. Heaps – implementation of priority queue. Binary Search trees, AVL tree (insertion, deletion with examples only), B-tree (insertion, deletion with examples only), Trie (insertion, deletion with examples only).

Module IV [12L]

Searching: Sequential, Binary. Complexity analysis and comparison.

Sorting: Introduction – idea about internal and external sorting, in-place sorting, stability, adaptivity. Sorting algorithms - Bubble, Insertion, Selection, Shell, Quick, Merge, Heap, Radix. Complexity analysis (Average case analysis not required), and comparison.

Hashing: Hash Functions. Collision resolution – open and closed hashing.

Text Books:

1. Classic Data Structures –Debasis Samanta, PHI Learning.
2. Data Structures and Program Design in C -Robert L Kruse, Bruce P. Leung, Pearson Education.
3. Data Structures using C -Aaron M Tenenbaum, Moshe J Augustein, Pearson Education.

Reference Books:

1. Data Structures -Seymour Lipshutz, McGraw Hill.
2. Fundamentals of Data Structures in C -Ellis Horowitz, Sartaj Sahni, Susan Anderson-Freed,Universities Press.

S. Chattopadhyay

Paper Name: DATA STRUCTURES LAB					
Paper Code: MCAP1212					
Contact hrs. per week	L	T	P	Total	Credit Point
	0	0	4	4	3

Programs related to

- 1-D and 2-D array
- Linked List (Singly linked list, Circular Linked List, Doubly Linked List)
- Stack and Queue implementation using array and linked list
- Implementation of different recursive algorithms
- Implementation of Binary Search Tree (insertion, deletion, searching, traversals)

Different searching and sorting algorithms

Paper Name: DBMS I					
Paper Code: MCAP1203					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

Introduction to DBMS

Basic Concepts of Operational Data, Data vs Information, Introduction to Database and DBMS, Importance of Database Design, Files and File Systems, Problems with File System Data Management, Database Systems, Views of Data, Three-Level Architecture, Instances and Schemas, Database Administrator, Database Users, Advantages and Disadvantages of DBMS.

Data Model

Data Modeling and Data Models, Importance of Data Models, Data Model Basic Building Blocks, The Evolution of Data Models, Degree of Data Abstraction.

Entity-Relationship Modeling

Entity and Entity Instances, Attributes, Entity Relationships, Cardinality of Relationships, Strong and Weak Entity, Generalization, Specialization, Aggregation, Developing an ER Diagram, Entity Integrity and Primary Key, Translating ER Model into Relational Model

Module II [10L]

Relational Model

A Logical View of Data, Keys, Integrity Rules, Relational Set Operators, Data Dictionary and the System Catalog, Relationships within the Relational Database, Data Redundancy Revisited, Indexes, Codd's Relational Database Rules.

Relational Database Design

Functional Dependency (FD) –Definition, Trivial and Non-Trivial FD, Closure of Set of FD, Closure Of Attribute Sets, Irreducible Set of FD, Canonical Cover, Normalization – 1NF, 2NF, 3NF,BCNF, Decomposition using FD, Lossless Decomposition, Dependency Preservation.

Module III [10L]

Relational Algebra

Select Operation, Project Operation, Join Operation, Division Operation, Cross Product Operation, Set operations.

Relational Calculus

Introduction, Tuple Relational Calculus, Operators used in TRC, Example queries using TRC, Domain Relational Calculus, Operators used in DRC, Example queries using DRC, Comparison of TRC, DRC, RA

Structured Query Language (SQL)

Introduction to SQL, DDL, DML, DCL, Basic Structure, Basic Queries, Set operations, Aggregate Functions, Null Values, Domain Constraints, Referential Integrity Constraints, Assertions, Views, Joining Database Tables, Commit, Rollback.

Module IV [10L]

Advanced SQL

Subqueries and Correlated Queries, SQL Built in Functions - Numeric, Date, String Functions, Updatable Views.

Storage structure

Sequential and indexed file organization, B+ tree - creation, insertion &deletion.

Indexing

Primary, Secondary & Multi Level.

Text Books:

1. Database System Concepts - Korth, Silberschatz, S. Sudarshan, TMH.
2. Fundamentals of Database Systems - Elmsari and Navathe, Addison-Wesley.

Reference Books:

S. Chattopadhyay

1. An Introduction to Database Systems - Date C. J, Addison-Wesley.
2. SQL-PL/SQL - Ivan Bayross, BPB.

Paper Name : DBMS I Lab					
Paper Code: MCAP1213					
Contact hrs per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

Problems related to

1. Database Creation
   - Creating a Database
   - Creating a Table
   - Specifying Relational Data Types
   - Specifying Constraints
   - Creating Indexes

2. Table and Record Handling
   - INSERT statement
   - Using SELECT and INSERT together
   - DELETE, UPDATE, TRUNCATE statements
   - DROP, ALTER statements

3. Retrieving Data from a Database
   - The SELECT statement
   - Using the WHERE clause
   - Using Logical Operators in the WHERE clause
   - Using IN, BETWEEN, LIKE , ORDER BY, GROUP BY and HAVING

4. Clause
   - Using Aggregate Functions
   - Combining Tables Using JOINS
   - Subqueries

5. Database Management
   - Creating Views
   - Creating Column Aliases
   - Creating Database Users
   - Using GRANT and REVOKE

Paper Code: MCAP1204

Contact hrs per week:	L	T	P	Total	Credit Point
	3	0	0	3	4

Module I [10L]

Introduction to Information System:

System Definition and concepts, System Environments and Boundaries, Real time and distributed systems, Basic principles of successful systems, Structured System Analysis and Design.

Systems Analyst: Role and Need of Systems Analyst, Qualifications and responsibilities, System Analysis as a Profession.

System Development Cycle: Introduction to Systems Development Life Cycle (SDLC), Various phases of SDLC: Study, Analysis, Design, Development, Implementation, Maintenance

Module II [10L]

Systems documentation & Design technique:

Principles of Systems Documentation, Types of documentation and their importance, enforcing documentation discipline in an organization.

System Planning: Data and fact gathering techniques : Interviews, Group Communication Questionnaires, Presentations & Site Visits.

Assessing Project Feasibility: Technical, Operational, Economic, Cost Benefits Analysis, Schedule, legal and contractual, Political. Modern Methods for determining system requirements.

Conceptual Data Modeling: Entity Relationship Analysis, Entity-Relationship Modeling.

Module III [10L]

System Design:

Structure Charts. System Design and Modeling: Process Modeling, logical and physical design, DFDs, Process Description: Structured English, Decision Tree, Decision Tables.

Documentation: Data Dictionary, Recording Data Descriptions. Input and Output: Classification of forms, Input/output forms design.

User-interface design, Graphical interfaces. Standards and guidelines for GUI design. Module specifications. Top-down and bottom-up design. Module coupling and cohesion.

Module IV [10L]

System implementation, Maintenance, security and audit:

S. Chattopadhyay

Planning considerations. Conversion methods, procedures and controls. System acceptance criteria.

System Evaluation and Performance. Testing and Validation. Preparing User Manual. Maintenance Activities and Issues.

Need for controls, objectives of controls, techniques used in controls, Gantt chart, PERT. Introduction to computer crime, security and ethical challenges. Auditing information systems.

Text Books:

1. Roger. S. Pressman. (2009). Software Engineering: A Practitioner's Approach, 7th Edition, Tata McGraw Hill, New Delhi,

2. Kendall, Kenneth E and Julie E. Kendall, (2009). Systems Analysis and Design, 7th Edition, Prentice Hall of India.

3. Alan Dennis, Barbara H. Wixom and Roberta M Roth. (2009).Systems Analysis & Design, 4th Edition, Wiley & Sons.

Reference Books:

1. Jeffrey, L. Whitten and Lonnie D. Bentley. (2004). System and Design Methods. 6th Edition, Tata McGraw Hill

2. Jeffrey A. Hoofer, Joey F. George and Joseph S. Valacich. (2007). Modern Systems Analysis and Design, 5th Edition (2007). Pearson Education.

3. Roger H.L.Chinan, Keng Siau, and Bill C. Hardgrave. (2009). Systems Analysis and Design Techniques, Methodologies, Approaches, and Architectures,1st Edition. Prentice Hall of India.

Paper Name: PROBABILITY AND STATISTICAL COMPUTING					
Paper Code: MCAP1205					
Contact hrs per week:	**L**	**T**	**P**	**Total**	**Credit points**
	3	**1**	**0**	**4**	**4**

Module I [10L]

Probability: Random Experiment, Sample Space, Random Events, Probability of Events, Probability of Non-Disjoint Events (Theorems), Counting Techniques Applied to Probability Problems. Conditional Probability, Stochastic Independence of Events, Bayes' Theorem and Related Problems.

Module II [10L]

Random Variable and Probability Distribution: Concept of Random Variables, Probability Mass Function, Probability Density Function and Distribution Function. Expectation and Variance, Moment Generating Function, Chebyshev's Inequality (statement) and Related Problems. Binomial, Poisson, and Normal Distributions.

Module III [10L]

Sampling and Estimation: Sampling: Population, Sample, Random Sampling, Statistic and its Distribution, Standard Error of Statistic, Sampling Distribution of Sample Mean and Variance in Random Sampling from a Normal Distribution (statement only) and Related Problems.

Estimation of Parameters: Point Estimation, Unbiased, Minimum Variance Unbiased and Consistent Estimators, Interval Estimation, Maximum Likelihood Estimation and Related Problems.

Module IV [10L]

Testing of Hypothesis: Simple and Composite Hypothesis, Critical Region, Level of Significance, Type I and Type II Errors, Power of a Test, Unbiased Tests, Neyman-Pearson Theorem (proof not required), Application to Normal Population, Likelihood Ratio Test (proof not required), Comparison of Binomial and Normal Populations, Testing of Equality of Means χ^2 - Test for Goodness of Fit.

Text Books:

1. A First Course in Probability - S. Ross, Collier Macmillan.
2. Statistical Methods (Volume 1 and 2) – N. G. Das, TMH.

Reference Books:

1. Mathematical Statistics – S.C. Gupta and V. K. Kapoor, S. Chand.
2. Engineering Mathematics: Volume IIIA – B. K. Pal & K. Das, U. N. Dhur & Sons Pvt. Ltd.
3. Introduction to Mathematical Statistics - Hogg, McKean and Craig, American Publishing.
4. Statistical Analysis: A Computer Oriented Approach - A. A. Afifi, Academic Press.

RESOLUTIONS TAKEN AT THE MEETING OF

BOARD OF STUDIES
DEPARTMENT OF COMPUTER APPLICATIONS
HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

DATE : 02.07.2019
VENUE : MCA Building, MCA 103
TIME : 02:00 pm

The course structure and course content of MCA 1st year under autonomy was prepared by members of Faculty of Department of Computer Applications and the Department of Humanities prior to the meeting. The same were reviewed in the DAC meeting held on 29.05.2019. In the BOS meeting, the course structure and course content of MCA 1st year were modified as per the suggestions of the external experts. The modifications suggested by the experts are summarized below:

1. Operating Systems, both theory & lab subjects have been shifted to 2nd year 1st semester and hence got their code as MCAP2103 & MCAP2113.
2. DBMS I, both theory & lab subjects have been shifted to 1st year 2nd semester and hence got their code as MCAP2103 & MCAP2113.
3. Advanced Java has been replaced by Internet of Things in Elective – III.
4. DBMS –II, both theory & lab subjects have been shifted to 2nd year 1st semester.
5. Computer Communication Networks has been shifted to 2nd year 2nd semester.
6. Data Science has been replaced by Data Mining & Data Warehousing in Elective – IV.
7. Blockchain has been renamed as Blockchain Technology & Applications in Elective – III.
8. Programming in C by Reema Thareja has been suggested as a text book for MCAP1101.

Read and Confirmed.

02-07-19

Prof. Sipra Das Bit
Professor,
Department of CST, IIEST, Shibpur
External Expert,
BOS - CA

Samiran Chattopadhyay

Prof. Samiran Chattopadhyay
Professor,
Department of IT,
Jadavpur University
External Expert,
BOS - CA

Mr. Udayan Kar,
Senior Manager,
Ericsson India Global Services Pvt. Ltd.
Industry Expert,
BoS-CA

Mr. Anish Paul
Software Engineer,
Cerner India Healthcare Services Pvt. Ltd.
Alumni Representative,
BoS-CA

Prof. Siuli Roy,
Professor,
Department of IT, HITK
Expert from Other Department,
BoS-CA

Dr. Suparna Chakraborty
Head,
Department of Humanities, HITK
Expert from Other Department,
BoS-CA

Dr. Souvik Basu,
Head,
Department of CA, HITK
Chairman,
BoS-CA

Dated: 02.07.2019

RESOLUTIONS TAKEN AT THE MEETING OF
BOARD OF STUDIES
COMPUTER APPLICATION CENTRE
HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

DATE: 16/01/2018
VENUE: MCA BUILDING
TIME: 02:00 PM

Following are the minutes of the BOS meeting:

The course content of MCA 5th semester under autonomy was prepared by faculty members of Computer Application Centre prior to the meeting. The same were reviewed in the DAC meeting held on 21.12.2017. In the BOS meeting, the course content is modified as per the suggestions of the external experts. The modifications suggested by the experts are summarized below:

1. MCAP3150 (System Administration using Linux): In module I, names of different distribution of Linux is replaced by "Introduction of various Linux variants and comparative study". In module II, list of commands is to be removed. The heading in Module IV "Linux Networking" is replaced by "Networking in Linux".

2. MCAP3151 (Advanced Java): In module IV, "Regular expressions, concurrency, generics, native methods" is to be removed.

3. MCAP3160 (Cryptography and Network Security): In module IV, "Wireless Network Security" is to be removed.

4. MCAP3170 (Mobile Computing): In module I, "Mobile computing vs wireless networking" is replaced by "Mobile communication vs. wireless communication" and "Fixed assignment schemes" is replaced by "Channel assignment scheme (static and dynamic)".

5. MCAP3171 (Soft Computing): It is resolved that Module II and Module III are to be interchanged.

6. MCAP3180: It is resolved that the paper name will be "High Performance Computing". In module IV, "IOT and Ubiquitous Networking" is replaced by "IOT and Cloud". Text book "Ubiquitous Computing: Smart Devices, Environments and Interactions" is interchanged with reference book "IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things".

7. MCAP3183 (Ecommerce and ERP): It is resolved that the syllabus is to be trimmed down.

Read and Confirmed.

Prof. Atal Chaudhuri
Professor,
Computer Science & Engg,
Jadavpur University

Prof. Sipra Das Bit
Professor,
Computer Science & Tech,
IIEST, Shibpur

Prof. Siuli Roy
Director,
Computer Application Centre,
HIT, Kolkata

LIST OF MEMBERS PRESENT AT THE BOS MEETING HELD ON 16.01.2018

SERIAL	NAME	SIGNATURE
1.	Prof. Siuli Roy, *Professor & Director, CAC*	16.1.18
2.	Prof. Atal Chaudhuri, *Professor, Department of CSE, JU*	16.01.18
3.	Prof. Sipra Das Bit, *Professor, Department of CST, IIEST, Shibpur*	16.01.18
4.	Mr. Ranoj Saha, *Associate Director,* *Capegemini India Pvt. Ltd, Kolkata*	
5.	Mr. Souvik Basu, *Assistant Professor, CAC*	
6.	Ms. Sudeshna Ghosh, *Assistant Professor, CAC*	Sudeshna Ghosh 16/01/2018
7.	Mr. Debabrata Kar, *Assistant Professor, CAC*	16/1/18
8.	Mr. Anirban Kundu, *Assistant Professor & DC, CAC*	Anirban Kundu 16/01/2018
9.	Ms. Subhra Pramanik. *Assistant Professor, CAC*	Subhra Pramanik 16/1/18
10.	Mr. Sandipan Ganguly. *Assistant Professor, CAC*	Sandipan Ganguly 16/1/18
11.	Dr. Jyotirmoy Ghosh, *Assistant Professor, CAC*	16/01/18
12.	Mr. Palash Ghosh, *Assistant Professor, CAC*	
13.	Mr. Subhajit Rakshit, *Assistant Professor, CAC*	Rakshit 16/01/18
14.	Mr. Sumon Ghosh, *Assistant Professor, CAC*	16/01/18
15.	Mr. Somak Sen, *Assistant Professor, CAC*	Somak Sen 16/1/18

MCA 3rd Year 1st Semester:

SERIAL NO	PAPER CODE	PAPER NAME	CONTACTS (PERIODS/WEEK)				CREDITS
			L	T	P	TOTAL	
A. THEORY							
1	MCAP3150 to 3152	Elective I	3	1	-	4	4
2	MCAP3160 to 3162	Elective II	3	1	-	4	4
3	MCAP3170 to 3172	Elective III	3	1	-	4	4
4	MCAP3180 to 3183	Elective IV	3	1	-	4	4
Total of Theory						**16**	**16**
B. PRACTICAL							
5	MCAP3155 to 3157	Elective I Lab	-	-	4	4	3
Total of Practical						**4**	**3**
C. SESSIONAL							
6	MCAP3195	Minor Project and Seminar	-	-	12	12	10
Total of Sessional						**12**	**10**
Total of Semester						**32**	**29**

Electives for 3rd Year 1st Semester:

ELECTIVE NO	COURSE CODE	TOPIC
Elective I	MCAP3150	System Administration using Linux
	MCAP3151	Advanced Java
	MCAP3152	Image Processing
Elective II	MCAP3160	Cryptography and Network Security
	MCAP3161	Theory of Computing
	MCAP3162	Big Data Analysis
Elective III	MCAP3170	Mobile Computing
	MCAP3171	Soft Computing
	MCAP3172	Data Mining and Data Warehousing
Elective IV	MCAP3180	High Performance Computing
	MCAP3181	Parallel and Distributed Computing
	MCAP3182	Compiler Design
	MCAP3183	Ecommerce and ERP
Elective I Lab	MCAP3155	.System Administration Lab
	MCAP3156	Advanced Java Lab
	MCAP3157	Image Processing Lab

Paper Name: SYSTEM ADMINISTRATION USING LINUX					
Paper Code: MCAP3150					
Contact hrs. per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [8L]

Introduction to Linux

Basic idea on proprietary, Open source, Free software; Introduction of various Linux variants and comparative study; Basic architecture of Linux system. Linux file system, Boot block, Super block, Inode table, Data blocks, Linux file access, Storage files, Standard directories, LILO, GRUB boot loader; Installation of Linux system, init and run levels.

Module II [11L]

Linux Basics

Login process, Creating user account and group, Getting help. Services and process, Files and file system, Working with files: Reading, Searching, Copying, Moving, Renaming, Deleting, Linking, and Editing files; Disk related commands. Various types of shell available in Linux and their comparisons, Shell programming in bash.

Module III [10L]

System Administration

Common administrative tasks, Identifying administrative files – Configuration and log files, Role of system administrator, Managing user accounts and groups, Creating and mounting file system, Checking and monitoring system performance, File security and permissions, Concepts of Super user; Getting system information. Backup and restore files, Reconfiguration hardware with kudzu, Installing and removing packages in Linux.

Module IV [11 L]

Networking in Linux

Installation and configuration of a simple LAN; Installation and configuration of: Proxy server (Squid), DNS server (BIND), Mail server, Web server (Apache), File server (Samba), DHCP server; Installation and configuration of SSH server and client, FTP server and client. Setting up Linux for firewalling, IP accounting.

Text Books:

1. Linux Administration: A Beginner's Guide - Shah, TMH.
2. LINUX: The Complete Reference - Petersen, TMH.

Reference Books:

1. Red Hat LINUX-Administrator's Guide - Cox, PHI.
2. LINUX Network Administrator's Guide - Kirch, SPD/O' REILLY.
3. Essentials System Administration - Frisch, SPD/O'REILLY.
4. Red Hat Linux Networking & System Administration - Terry Collings & Kurt Wall, Wiley.

Paper Name: SYSTEM ADMINISTRATION LAB					
Paper Code: MCAP3155					
Contact hrs. per week:	**L**	**T**	**P**	**Total**	**Credit Point**
	0	**0**	**4**	**4**	**3**

1. Experiment on packet monitoring software (tcpdump, snort, ethereal)
2. Experiment on using trace route, Ping, Finger, Nmap
3. Server configuration (FTP, SMTP, DNS)
4. NFS configuration
5. Firewall configuration using iptables/ipchains.

Paper Name: ADVANCED JAVA					
Paper Code: MCAP3151					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

GUI Programming: Swing

Swing components and containers, Layout managers, Menu, Event-Driven programming, Event handling mechanism, Event delegation model, Event classes, Event sources, Event listeners, Adapter classes.

Database Programming: JDBC

Introduction to JDBC, JDBC drivers & architecture, Different approaches of connection, Establishing database connection and executing SQL statements, JDBC prepared statements, JDBC data sources.

Module II [10L]

Server Technologies: Servlet

Web application basics, Architecture and challenges of web application, Enterprise Architecture styles: Single tier, 2-tier, 3-tier, n-tier, Relative comparison of the different layers of architectures.

Introduction to servlet, Servlet life cycle, Developing and deploying servlets, Exploring deployment, Descriptor (web.xml), Handling Request and Response, Servlet Chaining, Session tracking and management, Dealing with cookies, Servlet Listeners.

Module III [10L]

Server Technologies: JSP

Comparison between JSP & servlet, Basic JSP architecture, JSP life cycle, JSP tags and expressions, Role of JSP in MVC-2, JSP with database, JSP implicit objects, Tag libraries, JSP Expression Language (EL), Using Custom tag, Exception handling, Session management, Directives.

RMI (Remote Method Invocation)

RMI overview, RMI architecture, Example demonstrating RMI

Module IV [10L]

Enterprise JAVA Beans

Enterprise Bean overview, Types of Enterprise Beans, Advantages of Enterprise Beans, Enterprise Beans life cycle, Working with Session Beans, Statefull vs. Stateless Session Beans, Working with Entity Beans, Message Driven Beans.

Text Books:

1. Advanced Java: Platform How to Program – Harvey M. Deitel, Paul J. Deitel and Sean E. Santry, Prentice Hall.

2. Professional JAVA Server Programming – Allamaraju and Buest, SPD Publication.

Reference Books:

1. Beginning J2EE 1.4 – Ivor Horton, SPD Publication.
2. Advanced Programming for JAVA 2 Platform – Austin and Pawlan, Pearson
3. Internet & Java Programming - Krishnamoorthy and S. Prabhu, New Age Publication
4. Advanced Java: Idioms, Pitfalls, Styles, and Programming Tips – Chris Laffra, Addison Wesley.

Paper Name: ADVANCED JAVA LAB					
Paper Code: MCAP3156					
Contact hrs. per week	L	T	P	Total	Credit Point
	0	0	4	4	3

Programs related to

- Programming using Swing and Event handling
- JDBC connectivity
- Servlet programming
  - RequestDispatcher
  - sendRedirect
  - GET and POST methods
  - Cookies
  - Sessions
- JSP design
  - page, include, taglib
  - scripting elements
- Remote Method Invocation: programs to provide the mechanism by which the server and the client communicate and pass information back and forth
- JavaBeans
  - useBean action tag
  - getProperty
  - setProperty
  - programs to implement to dynamically generate HTML, XML or other types of documents in response to a web client request

Paper Name: IMAGE PROCESSING					
Paper Code: MCAP3152					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [8L]

Introduction

Overview of image processing, Application area of image processing, Digital image representation, Fundamental steps in image processing, Components of an image processing system. Sampling and quantization. Basic relationship between pixels – Neighbours, Adjacency, Connectivity, Regions, Boundaries and distance measures. Introduction to Fourier transform and Discrete Fourier transform, Properties of 2D Discrete Fourier transform.

Module II [12L]

Image Enhancement

Spatial domain image enhancement techniques: Basic intensity transformations – Negative, Log, Power-law, Piecewise linear transformations, Histogram based techniques (histogram equalization, histogram matching). Spatial filtering: Smoothing (linear and non-linear), Sharpening (gradient and Laplacian), Unsharp masking and highboost filtering.
Enhancement in the frequency domain – Basics of filtering in frequency domain, Smoothing and sharpening filters: Ideal, Butterworth, Gaussian. Homomorphic filtering. Selective filtering.

Module III [10L]

Image Restoration

Model of image degradation/restoration process, Noise models, Image restoration in presence of noise only – Spatial filtering, Periodic noise reduction by frequency domain filtering – Bandreject and bandpass filtering. Inverse filtering, Least mean square error filtering, Constrained least squares filtering.

Image Compression

Fundamentals- Redundancy, Measuring image information, Fidelity criteria, Image compression models. Compression methods: Huffman coding, Arithmetic coding, LZW coding, Run length coding, Bit plane coding, Predictive coding.

Module IV [10L]

Image Segmentation

Detection of discontinuities, Edge, Line and point detection. Edge linking and boundary detection - Local processing, Global processing via Hough transform. Thresholding – Global, Optimum, Multiple and variable. Region based segmentation: Growing, Splitting and merging.

Image Representation

Representation: Chain codes, Polygonal approximation. Boundary descriptors. Regional descriptors.

Text Books:

1. Digital Image Processing - Gonzalez, Woods, Pearson.
2. Fundamentals of Digital Image Processing - Jain, Pearson.

Reference Books:

1. Principles of Digital Image Processing: Advanced Methods – Burger, Burge, Springer.
2. Digital Image Processing and Analysis - Chanda, Majumder, PHI.
3. Image Processing Principles and Applications - Acharya and Ray, Wiley.
4. Image Processing, Analysis & Machine Vision - Sonka, Hlavac, Boyle, Cengage Learning.

Paper Name: IMAGE PROCESSING LAB					
Paper Code: MCAP3157					
Contact hrs. per week	L	T	P	Total	Credit Point
	0	0	4	4	3

1. Reading, writing, and displaying images, Conversion from RGB to gray images.
2. Intensity transformations – Image negative, Log, Power-law.
3. Contrast stretching.
4. Image histogram and histogram equalization.
5. Spatial filtering - Smoothing: Linear and non-linear, Sharpening.
6. Fourier transformation of images.
7. Frequency domain filtering.
8. Point detection, Line detection and edge detection.
9. Thresholding – Local, Global, Optimum, Multiple and variable.
10. Region growing, Splitting and merging.

Paper Name: CRYPTOGRAPHY AND NETWORK SECURITY					
Paper Code: MCAP3160					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

Introduction to Security

Security goals, Threats, Vulnerabilities and attacks, Types of attacks, Security services and mechanisms.

Mathematical Foundation

Number theory, Congruencies, Modular Arithmetic, Chinese Remainder theorem, Fermat and Euler's theorem, Finite Fields, Discrete Logarithm.

Module II [10L]

Symmetric Key Encryption

Substitution Ciphers, Transposition Ciphers, Stream and Block Ciphers, Simple DES, DES analysis, Double and Triple DES, RC4, RC5, AES.

Module III [10L]

Asymmetric Key Encryption and Hash Functions

Diffie-Hellman Key Exchange, EIGamal Public Key Encryption, RSA, Elliptic Curve based cryptography, SHA4, SHA5, MD5, Digital signature.

Module IV [10L]

Network Security Applications

Authentication applications: Kerberos, X509, Public Key Infrastructure. Electronic mail security – PGP, S/MIME. IP and Web security – IPSec, SSL, TLS, SET.

System Security

Intruders, Malicious software, Viruses, Worms, Bots, Rootkits, Firewalls, Security standards.

Text Books:

1. Cryptography and Network Security: Principals and Practice – William Stallings, Pearson Education India.
2. Cryptography and Network Security – Foruzan and Mukhopadhyay, McGraw Hill Education.

Reference Books:

1. Cryptography: Theory and Practice – D.R. Stinson, CRC Press.
2. Applied Cryptography – B.Schneier, Wiley.
3. Network Security: Private Communication in a Public World by Charlie Kaufman – Radia Perlman and Mike Speciner, Prentice Hall India.
4. Network Security Essentials: Applications and Standards – William Stallings, Pearson Education.

Paper Name: THEORY OF COMPUTING					
Paper Code: MCAP3161					
Contact hrs. per week	L	T	P	Total	Credit points
	3	1	0	4	4

Module I [12L]

Basic concepts

Types of languages and grammars.

Regular Language and Grammars

Regular language, Regular expression, Regular grammar, Right and Left Linear Grammar, Closure property of regular languages, Pumping lemma, Properties of regular expressions, DFA, NFA and their equivalence. Identifying non regular languages, reduction of number of states, equivalence between regular language and regular grammars.

Module II [10L]

Context free Language and Grammar

Context free language, Context free grammar, Derivation tree, Left most and right most derivation, Parsing and ambiguity, Chomsky and Greibach Normal Form, Pumping Lemma, Properties of CFL including closure property.

Module III [10L]

Pushdown Automata (PDA)

PDA, NPDA as recognizer of CFL.

Context Sensitive Language and Grammars

Context sensitive language, Context sensitive grammars, Matrix grammar, Markov algorithm, L-Systems. Recursive and recursively enumerable languages, Recursive functions, Ackerman's functions, r-recursive functions.

Module IV [8 L]

Turing machine and thesis

Non Deterministic Turing Machine, Universal Turing Machine, Computability and decidability, Undecidable problems: Halting problem of TM, Post correspondence problem, Undecidable problems of CFL, Post systems.

Text Books:

1. An Introduction to Formal Languages and Automata - P. Linz, Narosa Publishing House.
2. Theory of Computer Science - Mishra, Chandrashekharan, PHI.

Reference Books:

1. Introduction of Automata Theory, Languages and Computation, Student Edition - J. E. Hopcroft, J. D. Ullman, Narosa Publishing House.

2. Mathematical Theory of Computation - Zohar Manna, McGraw-Hill.
3. Introduction to Theory of formal Languages and Automata - John C Martin, McGraw-Hill.
4. Theory of Automata, Formal Languages and Computation - S. P. Eigere Xavier, New Age Publishers.

Paper Name: BIG DATA ANALYSIS					
Paper Code: MCAP3162					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [8L]

Introduction

Introduction to Big Data - Characteristics and foundation of Big Data. The need for Big Data analysis. Industry use cases for Big Data.

Statistical concepts: Populations and samples, Statistical modeling, Probability distribution, Fitting a model.

Module II [12L]

Big Data Architecture: Storage and analysis

Introduction of Hadoop and other Apache Big Data Tools, Hadoop cluster, HDFS Operations and HDFS file formats.

Introduction to Hadoop MapReduce Architecture and Programming.

Module III [12L]

Data extraction, transformation and loading mechanism

Introduction to Apache Sqoop - Data import and export mechanism.

Introduction to Hive, HQL and Hive operations.

Introduction to Pig and Pig scripting.

Module IV [8L]

Data visualization

Visualization using Tableau - Design reports, Dashboards etc

Case studies- Project initiation, Conceptualization, Design and environment preparation etc.

Text Books:

1. Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data - EMC Education Services, John Wiley & Sons.
2. Hadoop: The Definitive Guide - Tom White, O'Reilly.

Reference Books:

1. Predictive Analytics: The Power to Predict Who Will Click, Buy, Lie, or Die - E. Siegel, Wiley.
2. Too Big to Ignore: The Business Case for Big Data - P. Simon, Wiley.
3. Data Smart: Using Data Science to Transform Information into Insight - J. W. Foreman, Wiley.
4. Thinking with Data – M. Shron, O'Reilly.

Paper Name: MOBILE COMPUTING					
Paper Code: MCAP3170					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

Introduction

Introduction to mobile computing, Mobile communication vs. wireless communication, Mobile computing applications, Characteristics of mobile computing, Structure of mobile computing application.

Wireless MAC Protocols

Wireless MAC issues: Motivation for a specialized MAC (Hidden and exposed station problem, Near-far station), Channel assignment scheme (static and dynamic), Random assignment schemes, Reservation based schemes.

Module II [10L]

Mobile Network Layer

Mobile IP (Goals, Assumptions, Entities and terminology), IP packet delivery, Agent advertisement and discovery, Registration, Route optimizations.

Mobile Transport Layer

Traditional TCP, Indirect TCP, Snooping TCP, Mobile TCP, Fast Retransmit/Fast Recovery, Transmission /Time-out Freezing, Selective Retransmission, Transaction Oriented TCP.

Module III [10L]

Mobile Telecommunication Systems

Global System for Mobile Communication (GSM), General Packet Radio Service (GPRS), Universal Mobile Telecommunication System (UMTS), Long Term Evolution (LTE).

Module IV [10L]

Mobile Ad-Hoc Networks

Ad-Hoc basic concepts, Characteristics, Applications, Design issues, Routing, Essential of traditional routing protocols, Popular routing protocols, Security issues in MANETs.

Text Books:

1. Fundamentals of Mobile Computing – P. K. Pattnaik, R. Mall, PHI Learning Pvt. Ltd.
2. Mobile Communications – J. H. Schiller, Pearson Education.

Reference Books:

1. Principles of Mobile Computing – U. Hansmann, L. Merk, M. S. Nicklons and T. Stober, Springer.

2. Introduction to Wireless and Mobile systems – D. P. Agarval, Qing and An Zeng, Thomson Asia Pvt Ltd.
3. Mobile Cellular Telecommunications-Analog and Digital Systems – William.C.Y.Lee, Tata Mc Graw Hill Edition.
4. AdHoc Mobile Wireless Networks – C. K. Toh, Pearson Education.

Paper Name: SOFT COMPUTING					
Paper Code: MCAP3171					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [8L]

Introduction

Introduction to soft computing, Different tools and techniques, Usefulness and applications.

Genetic algorithm (GA)

Basic concepts, Working principle, Encoding, Fitness function, Genetic modeling: Inheritance, Selection, Cross over, Mutation, Bitwise operator, Convergence of GA, Overview of Multi-Objective Genetic Algorithm (MOGA).

Module II [10L]

Neural Network

Structure and function of biological neuron, Artificial neuron, Definition of Artificial Neural Network (ANN), Taxonomy of neural net, Difference between ANN and human brain, Characteristics and applications of ANN, Single layer network, Multilayer Perceptron(MLP), Linear separability, Different activation functions, Back propagation algorithm, Basic concept of convolution and recurrent neural network, Applications of neural networks.

Module III [12L]

Fuzzy sets and Fuzzy logic systems

Overview of classical set theory, Fuzzy sets and Fuzzy relations, Fuzzy set operations, Properties of Fuzzy sets, Cardinality, Properties of Fuzzy relations.

Membership functions

Features of membership functions, Standard forms and boundaries, Standard Fuzzification methods.

Fuzzy to Crisp conversions

Lambda cuts for Fuzzy sets, Fuzzy relations, Defuzzification methods, Overview of classical predicate logic, Fuzzy logic, Approximate reasoning and Fuzzy implication.

Fuzzy rule based systems:

Linguistic hedges, Fuzzy rule based system–Aggregation of Fuzzy rules.

Module IV [10L]

Rough Set

Introduction to Rough sets, Decision table, Indiscernibility relations and set approximation, Reducts & Core, Rough approximation, Decision matrix, Application of Rough set.

Evolutionary Algorithm

Introduction, Key principles of swarm, Overview and application of - Ant colony optimization (ACO), Particle swarm optimization (PSO), Artificial bee colony optimization (ABC)

Text Books:

1. Fuzzy logic with Engineering Applications - Timothy J. Ross, John Wiley and Sons.
2. Neural Networks, Fuzzy Logic and Genetic Algorithms - S.Rajasekaran and G.A.V.Pai, PHI.

Reference Books:

1. Soft Computing and Its Applications, Volume One: A Unified Engineering Concept, Volume 1 – Kumar S. Ray, CRC Press.
2. Genetic Algorithms in search, Optimization & Machine Learning - David E. Goldberg, Pearson India.
3. Artificial Neural Networks - B. Yegnanarayana, PHI.
4. Soft computing - Dilip K. Pratihar, Alpha Science International.

Paper Name: DATA MINING AND DATA WAREHOUSING					
Paper Code: MCAP3172					
Contact hrs. per week	**L**	**T**	**P**	**Total**	**Credit Point**
	3	1	0	4	4

Module I [8L]

Introduction

Overview of Data mining - definition, Data mining functionalities, Issues and challenges, Knowledge discovery process, Data preprocessing, Basic concepts of data mining in a Data warehouse environment.

Association Rules

Market basket analysis, Apriori algorithm, FP – tree growth algorithm, generalized association rule.

Module II [12L]

Data Mining Techniques and Decision Tree

Introduction of data mining techniques, Example of classification problem, Decision tree induction model over fitting pre-pruning, post-pruning, Rule-based classification.

Classification Techniques

Bayesian classification, Neural network, K-nearest neighbor, Support vector machine.

Module III [10L]

Clustering Techniques

Clustering paradigm, Partition algorithms, K-means, Fuzzy C-means, Hierarchical clustering, DBSCAN.

Data Mining Applications

Benefits of data mining, discussion on applications in real time system.

Module IV [10L]

Introduction to Data warehouse

Data warehousing – definitions and characteristics, DBMS schemas for decision support, Data warehouse life cycle, Building a data warehouse, Data Warehousing components and architecture, Warehouse schema, Data marts, OLTP and OLAP systems, OLAP tools.

Designing the Data Warehouse

Data Design - design decisions, Basics of dimensional modeling, Star schemas, Data warehouse design examples.

Text Books:

1. Introduction to Data Mining - Pang-Ning Tan, Michael Steinbach and Vipin Kumar, Pearson Publishers.

2. Data Mining: Concepts and Techniques - Jiawei Han and Micheline Kamber, Elsevier.

Reference Books:

1. Data Warehousing – Concepts, Techniques, Products, Application - Prabhu, PHI.
2. Data Mining Techniques - K. Pujari, Universities Press.
3. Data Warehousing, Data Mining and OLAP - Alex Berson and Stephen J Smith, TMH.
4. Data Warehousing in the Real World - Anahory, Pearson Education.

Paper Name: HIGH PERFORMANCE COMPUTING					
Paper Code: MCAP3180					
Contact hrs. per week	**L**	**T**	**P**	**Total**	**Credit Point**
	3	**1**	**0**	**4**	**4**

Module I [10L]

Introduction

Evolution of the computing paradigm, Overview of Ubiquitous Computing and its challenges.

Advanced Networking Technologies

NFC, Wireless Networking basics (Bluetooth, WiFi Direct, ZigBee).

Module II [10L]

Location Aware Computing

Personal Assistants, Location tracking, Architecture, Location based service and applications, Location based networks.

Context-aware Computing

Context and Context-aware computing, Issues and challenges, Developing context-aware applications, System architecture.

Module III [10L]

Privacy in Ubiquitous Computing

Understanding Ubicomp Privacy, Technical solutions for Ubicomp Privacy.

Ubiquitous Computing Applications

Wearable Computing, Human activity and emotion sensing, Health Apps, Mobile p2p computing, Smart Homes and Intelligent Buildings.

Module IV [10L]

IoT and Cloud

Definition, Trend, IOT components, IOT applications, Open challenges, Architecture, Energy efficiency, Participatory sensing, New protocols, QoS, QoE.

Text Books:

1. Ubiquitous Computing Fundamentals – John Krumm, CRC Press.
2. IoT Fundamentals: Networking Technologies, Protocols, and Use Cases for the Internet of Things – David Hanes, Gonzalo Salgueiro, Patrick Grossetete, Robert Barton,Jerome Henry, CISCO Press.

Reference Books:

1. Pervasive Computing: Technology and Architecture of Mobile Internet Applications – Jochen Burkhardt, Addison-Wesley.

2. Networking Infrastructure for Pervasive Computing: Enabling Technologies and Systems – Debashis Saha, Amitava Mukherjee, Somprakash Bandyopadhyay, Kluwer Academic.
3. Advances in Ubiquitous Networking – (Eds) Sabir, Essaïd, Medromi, Hicham, Sadik, Mohamed, Springer Lecture Notes in Electrical Engineering.
4. Ubiquitous Computing: Smart Devices, Environments and Interactions - Stefan Poslad, Wiley.

Paper Name: PARALLEL AND DISTRIBUTED COMPUTING					
Paper Code: MCAP3181					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

Introduction to Parallel Computing

Motivating parallelism, Scope of parallel computing, Pipelining and vector processing.

Parallel Hardware and Parallel Software

Some background - von Neumann architecture, Processes, Multitasking, and Threads, Modifications to the von Neumann model, Virtual memory and instruction-level parallelism, Hardware multithreading.

Parallel hardware – Flynn's taxonomy, Interconnection networks, Cache coherence, Shared-memory versus distributed-memory.

Parallel software – Caveats, Coordinating the processes/threads, Shared-memory, Distributed memory, Programming hybrid systems.

Performance - Speedup and efficiency, Amdahl's law, Scalability, Taking timings, Parallel program design example.

Parallel processing terminology - Data parallelism, Control parallelism.

Parallel Methods for Data Sorting:

Bubble sort - Sequential algorithm, Odd-Even transposition algorithm, Computation decomposition and analysis of information dependencies, Efficiency analysis.

Quick sort - Sequential algorithm, Parallel quick sort algorithm, Parallel computational scheme, Efficiency analysis.

Module II [10L]

Parallel Program Development

Parallel Methods for Matrix-Vector Multiplication

Problem statement, Sequential algorithm, Data distribution - Row wise data decomposition, Column wise data decomposition and Checkerboard data decomposition. Analysis of information dependencies, Efficiency analysis.

Parallel Methods for Matrix Multiplication

Problem statement, Sequential algorithm, Data distribution - Block-Striped data decomposition, Checkerboard data decomposition (Fox algorithm, Cannon algorithm); Analysis of information dependencies, Efficiency analysis.

Parallel Methods for Solving Linear Equation Systems

Gauss elimination algorithm and Gauss-Seidel algorithm, Problem statement, Sequential algorithm, Analysis of information dependencies, Efficiency analysis.

Module III [10L]

Introduction to Distributed Computing
Why distributed computing, Parallel vs. distributed computing.

Models of Distributed Systems
Synchronous vs asynchronous systems, Inter process communication models (shared memory and message-passing models, agent-based models), complexity measures.

Program Correctness
Safety and liveness properties, atomicity, non-determinism, fairness.

Time and Clocks
Causality and concurrency, physical, logical and vector clocks, clock synchronization.

Distributed Mutual Exclusion
Lamport's algorithm, Ricart-Agrawala's algorithm, Suzuki-Kasami's token-passing algorithm.

Distributed Snapshot and Global States
Consistent snapshots, Chandy-Lamport's distributed snapshot algorithm, Termination detection: Dijkstra-Scholten's algorithm, Distributed deadlock detection.

Module IV [10L]

Distributed Algorithms for Graphs
Routing algorithms (Shortest path, distance-vector, and link-state algorithms), Spanning tree and minimum spanning tree, Graph colouring algorithms.

Faults and Fault-tolerance
Classifications of faults and fault-tolerance, Triple modular redundancy, Sliding window protocols, how TCP works.

Distributed Consensus
The Byzantine Generals problem, Fault-tolerant state machines.

Replicated Data Management
Data consistency models: linearizability, Sequential consistency, Causal consistency, Eventual consistency.

Selected topics from Applications
Peer-to-Peer (P2P) networks, Sensor Networks, Cloud computing.

Text Books:
1. Parallel Computing –Theory and Practice - Michael J. Quinn, McGraw Hill Inc.
2. Distributed Systems – Principles and Paradigms – Tanenbum, Prentice Hall India Learning Private Limited.

Reference Books:

1. Introduction to Parallel Computing – Ananth Grama, Anshul Gupta, George Karypis, Vipin Kumar, Addison Wesley.
2. Introduction to Parallel Processing - Sashi Kumar, PHI.
3. Elements of Distributed Computing - Vijay Garg, John Wiley.
4. Distributed Systems, an Algorithmic Approach - Sukumar Ghosh, CRC Press.

Paper Name: COMPILER DESIGN					
Paper Code: MCAP3182					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

Compilation Basics

Analysis of the source program, Different phases of compilation. One /Two pass compilers.

Lexical Analysis

The role of the lexical analyzer, Tokens, Patterns, Lexemes, Input buffering. Specifications of a token, Token recognition, Lexical Analyzer Generator (Lex).

Finite Automata

Conversion from Regular Expression (RE) to NFA, NFA to DFA, Regular expression to DFA.

Module II [10L]

Language and Grammar

Chomsky Classification of grammar, Context free grammars.

Syntax Analysis

The role of a parser, Top down parsing, Nonrecursive Predictive parsing (LL), Bottom up parsing, Handles, Viable prefixes, Operator precedence parsing, LR parsers (SLR, LALR), Parser generators(YACC).

Error Recovery strategies for different parsing techniques.

Module III [10L]

Syntax Directed Translation

Syntax director definitions, Construction of syntax trees, Bottom-up evaluation of S attributed definitions, L attributed definitions, Bottom-up evaluation of inherited attributes.

Run Time Environment

Run time environments Source language issues (Activation trees, Control stack, scope of declaration, Binding of names), Storage organization (Subdivision of run-time memory, Activation records), Storage allocation strategies, Parameter passing (call by value, call by reference, copy restore, call by name), Symbol tables, Dynamic storage allocation techniques.

Module IV [10L]

Intermediate Code Generation

Intermediate languages, Graphical representation, Three-address code, Implementation of three address statements (Quadruples, Triples, Indirect triples).

Code Optimization & Final Code Generation

Code optimization introduction, Basic blocks & flow graphs, Optimization of basic blocks, Principle sources of optimization, Loops in flow graph, Peephole optimization. Code generations Issues in the design of code generator, A simple code generator, Register allocation & assignment.

Text Books:

1. Compiler Design - Aho, Ullman, Sethi, Lam, Pearson.
2. Compiler Design in C - Allen Holub, Prentice Hall.

Reference Books:

1. Algorithms for Compiler Design - O.G. Kakde, Laxmi Publications.
2. Engineering a Compiler, Keith Cooper, Linda Torczon – Morgan Kauffman.
3. Compiler Design - Santanu Chattopadhyay, PHI.
4. The Compiler Design Handbook Optimizations And Machine Code Generation - Y.N. Srikant, Priti Shankar, CRC Press.

Paper Name: ECOMMERCE AND ERP					
Paper Code: MCAP3183					
Contact hrs. per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I [10L]

Introduction to E-Commerce

Definition, Scope, Advantages and disadvantages of e-commerce, Electronic Commerce applications. E-Commerce Organization model based on transaction type, Model based on Transaction Party. E strategy: Overview, Strategic methods for developing E-commerce. Four C's: (Convergence, Collaborative computing, Content Management & Call Center). Electronic payment systems: Digital payment systems; First virtual Internet payment system; Cyber cash model.

Module II [9L]

E-Payment Mechanism

Payment through card system, Electronic Data Interchange (EDI): Concepts, Benefits and applications; EDI model, EDI protocols (UN EDI FACT / GTDI, ANSI X—12), Data encryption (DES / RSA). Risk of e-commerce: Overview, Security for e-commerce, Security standards, Firewall, Cryptography, Key management, Password systems, Digital certificates, Digital signatures.

Module III [10L]

Enterprise Resource Planning (ERP)

Introductory concepts: Scope, Benefits, Importance of ERP in the E-Business era. Supply Chain Management: Role of ERP in SCM, ERP features and capabilities. Overview of commercial software, Re-engineering work processes for IT applications, Business process redesign. Knowledge engineering and data warehouse, Advantages & disadvantages of ERP.

Module IV [11L]

ERP Business Modules

Introduction to basic modules of ERP system. Resource management in global scenario. Workflows in ERP, ERP and Corporate Portal, ERP implementation: ERP Life Cycle Model, Information systems planning, Critical Success Factors of ERP implementation, Extended ERP applications: Customer Relationship Management, Supply Chain Management, Product Life Cycle Management. Case Study: ERP as an Integrated System.

Text Books:

1. Electronic Commerce - Peter Loshin, John R. Vacca, Charles River Media.
2. Concepts in Enterprise Resource Planning - Ellen Monk, Bret Wagner, CENGAGE Learning India.

Reference Books:

1. E-Commerce - K.K. Bajaj, D. Nag, McGraw-Hill Education.
2. E-Commerce An Indian Perspective - P.T. Joseph, PHI Publication.
3. Electronic Commerce-Technology and Application – Bhaskar Bharat, McGraw-Hill Education.
4. Enterprise Resource Planning - Mary Sumner, PHI Learning India Pvt. Ltd.

To
Mr. Ranoj Saha,
Associate Director,
Capgemini India Pvt. Ltd.,
Kolkata

Date : 10.01.2018

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 16.01.2018 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

To
Prof. Atal Chaudhuri,
Professor,
Department of Computer Science & Engineering,
Jadavpur University,
Kolkata -32

Date : 10.01.2018

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 16.01.2018 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

To
Prof. Sipra Das Bit
Professor and Head,
Computer Science & Technology,
IIEST, Shibpur

Date : 10.01.2018

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Madam,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 16.01.2018 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

MCA PROGRAMME

(Master of Computer Application)

COURSE CONTENT

2nd Year 2nd Semester

Approved by:
Prof. Atal Chaudhuri
Prof. Sipra Das Bit
in BOS of 28.04.2017.

Paper Name: SOFTWARE ENGINEERING					
Paper Code: MCAP2201					
Contact hrs. per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I - [10L]

Introduction
Introduction to software engineering, importance of software, the software evolution, software characteristics, software applications, software crisis: problem and causes.

Software Development Life Cycle
Waterfall model, incremental and evolutionary process models, specialized Model – The Unified Process, agile process, and agile models.

Software Requirement Specification
Problem analysis, requirement elicitation and validation, requirements modeling: scenarios, information and analysis classes, flow and behavioral modeling, documenting Software Requirement Specification (SRS).

Module II - [8L]

Software Cost Estimation
Overview of software estimation – size, effort, duration and cost. Size estimation methods – Lines of Code (LOC) and Function Points (FP). Estimation of effort and duration based on size and productivity. Constructive Cost Model (COCOMO) – Basic, Intermediate, Detailed. COCOMO II.

System Design
Design concepts, design models for architecture, component, data and user interfaces; Problem partitioning, abstraction, cohesiveness, coupling, top down and bottom up design approaches.

Module III - [12L]

Structured Analysis and Design
Process model using Data Flow Diagram (DFD) with examples. Data dictionary, decision tree, decision table with examples. Data model using Entity Relationship Diagram (ERD) with examples.

Object Oriented Analysis and Design
OOAD basic concepts, Unified Modeling Language (UML) – different types of diagrams for different views of system, User view – Use case diagram with examples, Structural views – Class diagram with examples, Behavioral View – sequence, collaboration, Activity and State Chart Diagrams with examples. Implementation view-Component diagram, Environmental view-Deployment diagram, Functional versus Object Oriented Approach.

Coding
TOP-DOWN and BOTTOM-UP structure programming, information hiding, programming style, internal documentation, verification.

Module IV - [10L]

Software Testing
Levels of testing, functional testing, structural testing, test plan, test case specification, software testing strategies, verification &validation, unit and integration testing, Top Down and Bottom Up integration testing, Alpha & Beta Testing, White box and black box testing techniques, system testing and debugging.

Software Maintenance
Types of maintenance – Corrective, Preventive, Adaptive. Change management and maintenance process.

Software Quality Assurance
Software Configuration Management, overview of software quality control and quality assurance, ISO 9000 certification for software industry, SEI Capability Maturity Model (CMM) and comparison between ISO & SEI CMM.

Overview of technical metrics for software and CASE tool.

Text Books:
1. Software Engineering: A Practitioner's Approach - Roger S. Pressman, TMH.
2. Fundamentals of Software Engineering – Rajib Mall, PHI.

Reference Books:
1. Software Engineering - P. Fleeger, Prentice Hall.
2. Analysis and Design of Information System - J. A. Senn, Mc Graw Hill College.
3. Software Engineering - Sommerville, Addison Wesley.
4. Software Testing Tools - K. V. K. K Prasad, Dreamtech Press.

Paper Name: SOFTWARE ENGINEERING LAB					
Paper Code: MCAP2211					
Contact hrs. per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

Problems related to

1. Identifying requirements from problem statements
2. Estimation of project metrics
3. Modeling UML Use Case Diagrams and capturing Use Case scenarios
4. E-R modeling from the problem statements
5. Modeling Data Flow Diagrams
6. Identifying domain classes from the problem statements
7. State chart and Activity Modeling
8. Modeling UML Class Diagrams and Sequence Diagrams
9. Estimation of Test Coverage Metrics and Structural Complexity
10. Designing test suites using tools

Paper Name: WEB TECHNOLOGY					
Paper Code: MCAP2202					
Contact hrs. per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I – [10L]

Introduction
Internet Principles, concept of WWW, internet protocols and applications, web browser and web servers, features of Web 2.0

Web Design
Basic web concepts, Client/Server model, concepts of effective web design, web design issues including browser, display resolution, page layout and linking, user centric design, sitemap.

Dynamic Web Pages
The need of dynamic web pages; Comparative studies of different technologies of dynamic page creation.

HTML
Basics of HTML, formatting and fonts, commenting code, color, hyperlink, lists, tables, images, forms, XHTML, meta tags, character entities, frames and frame sets, browser architecture and web site structure. Overview and features of HTML5.

Module II – [10L]

Style sheets
Need for CSS, introduction to CSS, basic syntax and structure, using CSS, background images, colors and properties, manipulating texts, using fonts, borders and boxes, margins, padding lists, positioning using CSS, CSS2, Overview and features of CSS3

Extensible Markup Language (XML)
Introduction, tree, syntax, elements, attributes, validation, viewing. XHTML in brief.

HTTP
Message, request, response, methods, status codes.

Module III – [10L]

JavaScript
CGI concepts, data types, variables, operators, conditional statements, array object, date object, string object.

PHP
Introduction and basic syntax of PHP, decision and looping with examples, PHP and HTML, Arrays, Functions, Browser control and detection, string processing and regular expressions,

Form processing, Files, Advance Features: Cookies and Sessions, Object Oriented Programming with PHP.

Module IV – [10L]

PHP and MySQL

Open Source Web server, Connection to server, creating database, selecting a database, listing database, listing table names, creating a table, inserting data, altering tables, queries, deleting database, updating and deleting data and tables, PHP myadmin and database bugs.

Network security threats and techniques

Threats: Malicious code, eavesdropping, spoofing, denial of service attacks. Techniques: VPN, password and authentication, firewall, proxies.

Text Books:

1. Web Technologies – Uttam Roy, Oxford.
2. Learning PHP, MySQL & JavaScript: With JQuery, CSS & HTML5 – Robin Nixon, Shroff Publishers.

Reference Books:

1. HTML & CSS: Design and Build Web Sites - Jon Duckett, John Wiley & Sons.
2. PHP 6 and MySQL 5 for Dynamic Web Sites - Larry Ullman, Peachpit Press.
3. Web Technologies (Black Book) -Kogent Learning Solutions Inc, Dreamtech Press.
4. Internet Technology & Web Design – Satish Jain, BPB Publications

Paper Name: WEB TECHNOLOGY LAB					
Paper Code: MCAP2212					
Contact hrs. per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

HTML

1. Web page design using tables, frames, header, footer and menu.
2. Creating a form with support for redirection to other page(s).
3. Designing CSS with Bootstrap features to allow for responsive web content.

JAVASCRIPT

1. Create dynamic web pages by modifying features of HTML tags.
2. Validate the fields of a form.
3. Create simple animations.

XML

1. How to write a XML document.
2. How to validate XML document.

PHP

1. Writing methods to implement GET and POST requests.
2. Implementing cookies and sessions.
3. Writing PHP and HTML in open source environment.

DATABASE CONNECTIVITY

1. Connecting to database in web server.
2. Query processing to retrieve data from database and update tables.

Paper Name: COMPUTER GRAPHICS					
Paper Code: MCAP2203					
Contact hrs. per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I – [10L]

Introduction
Basics of computer graphics, real world usage of computer graphics, classification of applications, display technologies, raster-scan systems, video controller, random-scan display processor, graphics input devices, graphics software and standard.

Graphics Primitives
Scan converting points.
Scan converting lines – DDA algorithm, Bresenham's algorithm, Midpoint algorithm.
Scan converting circles – Midpoint algorithm.
Scan converting ellipse – Midpoint algorithm.
Fill area primitives–boundary-fill and flood-fill, scan-line polygon fill.

Module II – [10L]

Affine Transformation (2D)
2D translation, rotation and scaling, homogeneous coordinates and matrix representation, composite transformations, reflection and shearing.

Viewing and Clipping
Viewing pipeline and coordinates system, window-to-viewport transformation, point clipping.
Line clipping algorithms - Cohen-Sutherland, Midpoint subdivision, Cyrus-Beck algorithms.
Polygon clipping – Sutherland Hodgeman algorithm, Weiler Atherton algorithm.

Module III – [10L]

3D Transformation and Viewing
3D translation, rotation and scaling, composite transformations.
Projections - perspective and parallel projections, specifying an arbitrary 3D view.

Curves and Surfaces
Polygon surfaces, curved lines and surfaces, parametric cubic curves – Hermite curves, Bezier curves, Uniform Nonrational B-Splines, Nonuniform Nonrational B-Splines, comparisons of cubic curves, introduction to parametric bicubic surfaces.

Module IV- [10L]

Visible Surface Detection
Classification of visible surface detection algorithms, back face detection, z-Buffer algorithm, scan-line algorithms, area subdivision algorithm, octree algorithms, visible-surface ray tracing.

Illumination and Shading

Illumination methods (ambient, diffused and specular reflection), constant and interpolated shading methods (Gouraud, Phong).

Text Books:

1. Computer Graphics C Version - D. Hearn and P. Baker, Pearson Education.
2. Computer Graphics - Xiang and Plastock, Schaum Outline Series

Reference Books:

1. Procedural Elements of Computer Graphics - Rogers, TMH.
2. Mathematical Elements for Computer Graphics - Rogers, TMH.
3. Computer Graphics - Andries van Dam, James D. Foley, John F. Hughes, Steven K. Feiner, Pearson Education.
4. Introduction to Computer Graphics & Multimedia – Mukhopadhyay and Chattopadhyay, Vikas Publishing House

Paper Name: GRAPHICS LAB Paper Code: MCAP2213					
Contact hrs. per week:	L 0	T 0	P 4	Total 4	Credit Point 2

The following set of experiments in this Lab will be conducted using C / OPENGL / JAVA in Windows / Linux Environment

1. Implementation of algorithms for drawing 2D primitives –
   - Line (DDA, Bresenham, Midpoint)
   - Circle (Midpoint)
   - Ellipse (Midpoint)
2. Implementation of region filling algorithms – Boundary fill, flood fill
3. 2D Geometric transformations –
   - Translation
   - Rotation
   - Scaling
   - Reflection
   - Shear
   - Composite 2D Transformations
4. Implementation of algorithms for line clipping –
   - Cohen-Sutherland
   - Midpoint subdivision
   - Cyrus-Beck
5. Drawing of curves – Cubic Bezier, B-Spline
6. Mini Project with animation

Paper Name: INTELLIGENT SYSTEMS					
Paper Code: MCAP2204					
Contact hrs. per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I – [10L]

Introduction
Introduction to Intelligent Systems: concept, typical problems, practical impact, approaches and limits.

Intelligent Agents
Definitions of a rational agent, reflex, model-based, goal-based, and utility-based agents, agent environment.

Problem Solving using Search - (Single agent)
State space search, explicit &implicit state space; Uninformed Search- search strategies, search tree, Breadth First Search, Uniform-cost search, Depth First Search; Informed search strategies – introduction, Hill Climbing search, Best First Search, Simulated Annealing, Genetic Algorithm Search, A* Search.

Module II – [10L]

Problem Solving using Search-(Two agents)
Adversarial Search- and-or graph, AO* search, two agent games – minmax & game trees, refining minmax, Alpha-Beta pruning.

Constraint satisfaction problems (CSP)
Representation of CSP, solution of CSP, variable and value ordering, heuristic search in CSP.

Knowledge Representation and Logic (Propositional Logic)
Knowledge representation and reasoning, inference, rules of inference, using inference rules to prove a Query/Goal/Theorem, soundness and completeness.

Module III – [10L]

Knowledge Representation and Logic (First Order Logic)
First Order Logic, unification, semantics, soundness, completeness, consistency, satisfiability; Inference in First Order Logic – resolution, proof as search, proof strategies, non-monotonic reasoning.

Knowledge Representation and Logic (Rule based Systems)
Rule Based Systems, Horn Clause Logic, Backward Chaining, Forward chaining, expert systems.

Other Representation Formalisms

Knowledge representation formalisms, semantic networks, inference in semantic networks; frame, inference in frame; script, inference in script.

Module IV – [10L]

Planning

Introduction to planning, logic based planning, planning systems - representation of states and goals, representation of action; Planning algorithm - planning as search, Partial-Order planning, Plan-Space planning algorithms.

Reasoning with Uncertainty (Probabilistic reasoning)

Reasoning with uncertain information- Probabilistic reasoning, review of probability theory; Probabilistic inference rules; Bayesian Networks - semantics of Bayesian networks, learning of Bayesian Network parameters, inferencing in Bayesian Networks, approximate inferencing in Bayesian Networks.

Reasoning with Uncertainty (Fuzzy Reasoning)

Reasoning with uncertainty, the problem: Real-World Vagueness, Historic Fuzziness; Fuzzy Sets: Basic Concepts, operations on Fuzzy sets; Fuzzy reasoning - Fuzzy inferencing; applications.

Text Books:

1. Introduction to Artificial Intelligence and Expert Systems - Dan W. Patterson, PHI.
2. Artificial Intelligence - A Modern Approach, S. Russell and P. Norvig, Pearson Education.

Reference Books:

1. Artificial Intelligence - Elaine Rich and Kelvin Knight, TMH.
2. Artificial Intelligence and Soft Computing Behavioral and Cognitive Modeling of the Human Brain - Amit Konar, CRC Press.
3. Artificial Intelligence: A New Synthesis – N.J. Nilsson, Morgan Kaufmann.
4. Fundamentals of Artificial Intelligence and Expert Systems – V.S. Janakiraman, Macmillan.

Paper Name: HUMAN VALUES AND PROFESSIONAL ETHICS					
Paper Code: HMTS2201					
Contact hrs. per week:	L	T	P	Total	Credit Point
	2	0	0	2	3

Module I

Human society and the Value System

Values: definition, importance and application.

Formation of Values: The process of Socialization
Self and the integrated personality
Morality, courage, integrity

Types of Values

Social Values: Justice, Rule of Law, Democracy, Indian Constitution, Secularism
Aesthetic Values: Perception and appreciation of beauty
Organizational Values: Employee: Employer--- rights, relationships, obligations
Psychological Values: Integrated personality and mental health
Spiritual Values &their role in our everyday life
Value Spectrum for a Good Life, meaning of Good Life

Value Crisis in Contemporary Society

Value crisis at----
Individual Level
Societal Level
Cultural Level
Value Crisis management --- Strategies and Case Studies

Module II

Ethics and Ethical Values
Principles and theories of ethics
Consequential and non-consequential ethics
Egotism, Utilitarianism, Kant's theory and other non-consequential perspectives
Ethics of care, justice and fairness, rights and duties

Ethics

Standardization
Codification
Acceptance
Application

Types of Ethics

Ethics of rights and Duties
Ethics of Responsibility
Ethics and Moral judgment
Ethics of care

Ethics of justice and fairness
Work ethics and quality of life at work

Professional Ethics
Ethics in Engineering Profession; moral issues and dilemmas, moral autonomy (types of inquiry) Kohlberg's theory, Giligan's theory (consensus and controversy)
Code of Professional Ethics Sample Code of ethics like ASME, ASCE, IEEE, Institute of Engineers, Indian Institute of materials management, Institute of Electronics and telecommunication engineers
Violation of Code of Ethics---conflict, causes and consequences
Engineering as social experimentation, engineers as responsible experimenters (computer ethics, weapons development)
Engineers as managers, consulting engineers, engineers as experts, witnesses and advisors, moral leadership
Conflict between business demands and professional ideals social and ethical responsibilities of technologies

Whistle Blowing
Facts, contexts, justifications and case studies

Ethics and Industrial Law
Institutionalizing Ethics: Relevance, Application, Digression and Consequences

Module III

Science, Technology and Engineering
Science, Technology and Engineering as knowledge and profession
----Definition, Nature, Social Function and Practical application of science
Rapid Industrial Growth and its Consequences
Renewable and Non- renewable Resources: Definition and varieties
Energy Crisis
Industry and Industrialization
Man and Machine interaction
Impact of assembly line and automation
Technology assessment and Impact analysis
Industrial hazards and safety
Safety regulations and safety engineering
Safety responsibilities and rights
Safety and risk, risk benefit analysis and reducing risk
Technology Transfer: Definition and Types
The Indian Context

Module IV

Environment and Eco- friendly Technology
Human Development and Environment

Ecological Ethics/Environment ethics
Depletion of Natural Resources: Environmental degradation
Pollution and Pollution Control
Eco-friendly Technology: Implementation, impact and assessment

Sustainable Development: Definition and Concept
Strategies for sustainable development
Sustainable Development--- The Modern Trends

Appropriate technology movement by Schumacher and later development Reports of Club of Rome.

Suggested Readings:

1) Human Values – A.N. Tripathi, New Age International, New Delhi.
2) Classical Sociological Theory –G. Ritzer, The McGraw Hill Companies, New York.
3) Postmodern Perspectives on Indian Society, S. L. Doshi, Rawat Publications, New Delhi.
4) Sustainable Development –D.K. Bhatnagar, Cyber Tech Publications, New Delhi.
5) The age of Spiritual Machines –R. Kurzwell, Penguin Books, New Delhi.
6) Social Problems in Modern Urban Society – S.K. Weinberg, Prentice Hall,Inc.,USA.
7) Sociology - Giddens, Anthony, London: Polity Press.

Paper Name: PERSONALITY DEVELOPMENT AND GROUP DISCUSSION					
Paper Code: HMTS2221					
Contact hrs. per week:	L	T	P	Total	Credit Point
	1	0	0	1	2

Module I

Self-Growth

i) Self Growth- Maslow's Hierarchy of Needs Theory
ii) Anger, Stress & Time Management- Theories and application
iii) SWOT Analysis

Module II

Stepping Up

i) Growth & Environment
ii) Competitive Spirit
iii) Responsibility Factor

Module III

Professional Communication

i) Impression Management- theory on social psychology
ii) Employability Quotient
iii) Cross-cultural communication

Module IV

Leadership & Team Playing

i) Leadership & Team Playing: Theories, Styles, Stages
ii) Motivation, Negotiation Skills, Conflict Management
iii) Planning & Envisioning: Initiative and Innovation in the Work Environment- De Bono's Six Thinking Hats

Evaluation:
Max.Marks-100(sessional)
25 marks/ module
Methodology: Assignment and project

Suggested Reading

1. Personality Development and Soft Skills -Barun K. Mitra, Oxford University.
2. Soft Skills: An Integrated Approach to Maximise Personality -Gajendra Singh Chauhan and Sangeeta Sharma, Wiley.
3. The Ace of Soft Skills: Attitude, Communication and Etiquette for Success - Gopalaswamy Ramesh and Mahadevan Ramesh, Pearson.

RESOLUTIONS TAKEN AT THE MEETING OF

BOARD OF STUDIES

COMPUTER APPLICATION CENTRE

HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

DATE: 28/04/2017
VENUE: MCA BUILDING
TIME: 03:00 PM

Following are the minutes of the BOS meeting:

The course content of MCA 4th semester under autonomy was prepared by faculty members of Computer Application Centre and Humanities department prior to the meeting. The same were reviewed in the DAC meeting held on 19.04.2017. In the BOS meeting, the course content is modified as per the suggestions of the external experts. The modifications suggested by the experts are summarized below:

1. A decision is taken by the board members that two text books and four reference books are suggested for each subject.

2. MCAP2201 (Software Engineering): The following two new books are added in the book list: Fundamentals of Software Engineering by Rajib Mall and Analysis and Design of Information System by J. A. Senn.

3. MCAP2211 (Software Engineering Lab): It is decided that open source tools will be used.

4. MCAP2202 (Web Technology): The following two new books are added in the book list: Web Technologies by Uttam Roy and Internet Technology & Web Design by Satish Jain.

5. MCAP2212 (Web Technology Lab): It is resolved that the word "SQL Query" is to be replaced by "Query Processing".

6. MCAP2203 (Computer Graphics): An additional reference book is suggested: Introduction to Computer Graphics & Multimedia by Mukhopadhyay and Chattopadhyay.

7. MCAP2213 (Graphics Lab): A mini project with animation is added.

8. MCAP2204 (Intelligent Systems): Concepts of AI' is added along with its definition and following two new books are added in the book list: Artificial Intelligence: A New Synthesis by N. J. Nilsson and Fundamentals of Artificial Intelligence and Expert Systems by V. S. Janakiraman.

9. Members unanimously recommend introduction of elective subjects in 4th semester.

Read and Confirmed.

Prof. Atal Chaudhuri Professor, Computer Science & Engg, Jadavpur University	**Prof. Sipra Das Bit** Professor, Computer Science & Tech, IIEST, Shibpur	**Prof. Siuli Roy** Director, Computer Application Centre, HIT, Kolkata

LIST OF MEMBERS PRESENT AT THE BOS MEETING HELD ON 28.04.2017

SERIAL	NAME	SIGNATURE
1.	Dr. Siuli Roy, *Associate Professor & Director, CAC*	28.4.17
2.	Prof. Atal Chowdhuri, *Professor,* *Department of CSE, JU*	28.04.17
3.	Prof. Sipra Das Bit *Professor,* *Department of CST, IIEST, Shibpur*	28.04.17
4.	Mr. Ranoj Saha, *Associate Director,* *Capgemini India Pvt. Ltd., Kolkata*	Absent
5.	Mr. Souvik Basu, *Assistant Professor, CAC*	28/04/2017
6.	Ms. Sudeshna Ghosh *Assistant Professor, CAC*	28/04/2017.
7.	Mr. Debabrata Kar, *Assistant Professor, CAC*	28/4/17
8.	Mr. Anirban Kundu *Assistant Professor and DC, CAC*	28/04/2017
9.	Ms. Subhra Pramanik *Assistant Professor, CAC*	Subhra Pramanik 28.4.17
10.	Mr. Sandipan Ganguly *Assistant Professor, CAC*	Sandipan Ganguly 28.04.2017
11.	Mr. Jyotirmoy Ghosh *Assistant Professor, CAC*	28/04/2017
12.	Mr. Palash Ghosh *Assistant Professor, CAC*	Absent
13.	Mr. Subhajit Rakshit *Assistant Professor, CAC*	Rakshit 28.04.17
14.	Mr. Sumon Ghosh *Assistant Professor, CAC*	28/04/2017
15.	Mr. Somak Sen *Assistant Professor, CAC*	Somak Sen 28/04/17
16.	Ms. Suparna Chakraborty *Head, Department of Humanities*	Absent
17.	Mr. Anandalok Adhya *Assistant Professor, CHE*	Absent

To
Mr. Ranoj Saha,
Associate Director,
Capgemini India Pvt. Ltd.,
Kolkata

Date : 24.04.2017

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 28.04.2017 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

Date : 24.04.2017

To
Prof. Atal Chaudhuri,
Professor,
Department of Computer Science & Engineering,
Jadavpur University,
Kolkata -32

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 28.04.2017 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

To
Prof. Sipra Das Bit
Professor and Head,
Computer Science & Technology,
IIEST, Shibpur

Date : 24.04.2017

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Madam,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 28.04.2017 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

MCA PROGRAMME
(Master of Computer Application)

COURSE CONTENT

1st year 2nd Semester

Approved in A.C.

Approved by:
Prof. Atal Chaudhuri
Prof. Sipra Das Bit
in BOS of 20.05.2016.

Subject Name: OBJECT ORIENTED PROGRAMMING WITH JAVA					
Paper Code: MCAP1201					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I - [10L]

Introduction to Object Oriented Programming

Genesis of Object Oriented Programming. Problems with Procedural Programming, Object Oriented Concepts – Objects & Classes, Abstraction, Encapsulation, Message Passing, Access Specifier, Relationships, Aggregation, Links & Associations, Generalization & Specialization, Inheritance, Abstract Classes, Meta-Class, Grouping Constructs. Comparison of Procedural & OOP.

Introduction to Java

Introduction and Overview, Virtual machines - concept and hierarchy of virtual machines.Basic Language Constructs,Arrays.String Class, String Methods, String Arrays, Command Line Arguments, StringBuffer Class, StringBuffer Methods.

Module II - [10L]

Classes and Objects

Defining a Class, Creating Objects, Assigning Object Reference Variables, Introducing Methods, Array of Objects, Constructors, Method Overloading, Passing and Returning Objects, "this" Keyword, Static Members, Introducing Access Control, Inner and Nested Classes.

Module III - [10L]

Inheritance

Inheritance and Code Reusability, Types of Inheritance, Dealing with "super", Multilevel Inheritance, Method Overriding, "final" Keyword, Object Class, Abstract Classes.

Interface

Defining Interfaces, Implementing Interfaces, Extending Interfaces, Interfaces and Multiple Inheritance.

Package

Using Packages, Java API, User Defined Packages, Classpath, Access Control.

Module IV - [10L]

Exception Handling

Exception and Exception Handling, Exception Types, Built-in Exceptions, "throw", "throws", "finally", Creating User Defined Exceptions, Chained and Unchained Exceptions.

Multithreading

Multitasking & Multithreading, Java and Multithreading, Creating Threads, Life Cycle of a Thread, Thread Methods, Thread Priorities, Synchronization and Deadlock.

Excerpts from java.util and java.lang
Garbage Collection, String Tokenizer, Collections API.

Text Books :

1. JAVA: The Complete Reference – Herbert Schildt, TMH.
2. Core Java I and II – Horstmann and Cornell, Oracle Corporation.

Reference Books:

1. Object Oriented Modeling & Design, James R. RumBaugh, PHI.
2. The Java Programming Language – James Gosling, Addison Wesley.
3. Java – How to Program – Deitel and Deitel, PHI.
4. A Programmer's Guide to Java SCJP Certification - Khalid A. Mughal and Rolf W. Rasmussen, Addison Wesley.

Subject Name: OBJECT ORIENTED PROGRAMMING LAB					
Paper Code: MCAP1211					
Contact hrs per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

Programs related to

- Language Features
- Arrays in Java and String Handling
- Classes and Objects
- Inheritance
- Interface and Package
- Exception Handling
- Multithreading
- java.util and java.lang
- Applet

Subject: DATA STRUCTURES					
Paper Code: MCAP1202					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module - I [8L]

Introduction
Concepts: Datatype and data structure, Abstract Data Type. Classification.
Algorithms concepts. Analysis: space and time analysis of algorithms – Big O, Θ, Ω notations.

Array
Different representations – row major, column major. Sparse matrix – itsimplementation and applications. Array representation of polynomials.

Linked List
Singly linked list, circular linked list, doubly linked list, linked list representation ofpolynomial and applications.

Module - II [8L]

Stack and Queue
Stack - implementation using array and linked list. Applications.
Queue, circular queue, deque - implementation using array and linked list. Applications.

Recursion
Principles of recursion – use of stack, differences between recursion anditeration, tail recursion.
Applications - The Tower of Hanoi.

Module - III [12L]

Graphs
Graph representations / storage – using adjacency matrix, adjacency list.

Trees
Basic Terminologies, tree representation – using array and linked list. Binary trees: traversal (pre-, in-, post-, level- order). Threaded binary trees. Huffman trees. Heaps – implementation of priority queue. Binary Search trees, AVL tree (insertion, deletion with examples only), B-tree (insertion, deletion with examples only), Trie (insertion, deletion with examples only).

Module - IV [12L]

Searching
Sequential, Binary. Complexity analysis and comparison.

Sorting
Introduction – idea about internal and external sorting, in-place sorting, stability, adaptivity. Sorting algorithms - Bubble, Insertion, Selection, Shell, Quick, Merge, Heap, Radix. Complexity analysis (Average case analysis not required), and comparison.

Hashing
Hash Functions. Collision resolution – open and closed hashing.

Text Books:

1. Classic Data Structures, Debasis Samanta, PHI Learning.
2. Data Structures and Program Design in C, Robert L Kruse, Bruce P. Leung, Pearson Education.
3. Data Structures using C, Aaron M Tenenbaum, Moshe J Augustein, Pearson Education.

Reference Books:

1. Data Structures, Seymour Lipshutz, McGraw Hill.
2. Fundamentals of Data Structures in C, Ellis Horowitz, SartajSahni, Susan Anderson-Freed, Universities Press.

Subject: DATA STRUCTURES LAB					
Paper Code: MCAP1212					
Contact hrs. per week	L	T	P	Total	Credit Point
	0	0	4	4	3

Programs related to

- 1-D and 2-D array
- Linked List (Singly linked list, Circular Linked List,Doubly Linked List)
- Stack and Queue implementation using array and linked list
- Implementation of different recursive algorithms
- Implementation of Binary Search Tree (insertion, deletion, searching, traversals)
- Different searching and sorting algorithms

Subject Name : DATABASE MANAGEMENT SYSTEMS I					
Paper Code: MCAP1203					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I – [10L]

Introduction to DBMS

Basic Concepts ofOperational Data, Data vs Information, Introduction to Database and DBMS, Importance of Database Design, Files and File Systems, Problems with File System Data Management, Database Systems, Views of Data, Three-LevelArchitecture, Instances and Schemas,Database Administrator, Database Users, Advantages and Disadvantages of DBMS.

Data Model

Data Modeling and Data Models, Importance of Data Models, Data Model Basic Building Blocks, The Evolution of Data Models, Degree of Data Abstraction.

Entity-Relationship Modeling

Entity and Entity Instances, Attributes,Entity Relationships, Cardinality of Relationships, Strong and Weak Entity, Generalization, Specialization, Aggregation, Developing an ER Diagram, Entity Integrity andPrimary Key, Translating ER Model into Relational Model

Module II – [10L]

Relational Model

A Logical View of Data, Keys, Integrity Rules, Relational Set Operators, Data Dictionary and the System Catalog, Relationships within the Relational Database, Data Redundancy Revisited, Indexes, Codd's Relational Database Rules.

Relational Database Design

Functional Dependency (FD) –Definition, Trivial and Non-Trivial FD,Closure of Set of FD, Closure Of Attribute Sets, Irreducible Set of FD, Canonical Cover, Normalization – 1NF, 2NF, 3NF,BCNF, Decomposition using FD, Lossless Decomposition, Dependency Preservation.

Module III – [10L]

Relational Algebra

Select Operation, Project Operation, Join Operation, Division Operation, CrossProduct Operation, Set operations.

Relational Calculus

Introduction, Tuple Relational Calculus, Operators used in TRC, Example queriesusing TRC, Domain Relational Calculus, Operators used in DRC, Example queries using DRC, Comparison of TRC, DRC, RA

Structured Query Language (SQL)
Introduction to SQL, DDL, DML, DCL, Basic Structure, Basic Queries,Set operations, Aggregate Functions, Null Values, Domain Constraints, Referential Integrity Constraints, Assertions, Views, Joining Database Tables, Commit, Rollback.

Module IV – [10L]

Advanced SQL
Subqueries and Correlated Queries, SQL Built in Functions - Numeric, Date, String Functions, Updatable Views.

Storage structure
Sequential and indexed file organization, B+ tree - creation, insertion &deletion,

Indexing
Primary, Secondary& Multi Level.

Text Books:

1. Database System Concepts, Korth, Silberschatz, S. Sudarshan, TMH.
2. Fundamentals of Database Systmes, Elmsari and Navathe, Addison-Wesley.

Reference Books:

1. An Introduction to Database Systems, Date C. J., Addison-Wesley.
2. SQL-PL/SQL - Ivan Bayross, BPB.

Subject Name : DATABASE MANAGEMENT SYSTEMS I LAB					
Paper Code: MCAP 1213					
Contact hrs per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

Problems related to

1. Database Creation
   - Creating a Database
   - Creating a Table
   - Specifying Relational Data Types
   - Specifying Constraints
   - Creating Indexes

2. Table and Record Handling
   - INSERT statement
   - Using SELECT and INSERT together
   - DELETE, UPDATE, TRUNCATE statements
   - DROP, ALTER statements

3. Retrieving Data from a Database
   - The SELECT statement
   - Using the WHERE clause
   - Using Logical Operators in the WHERE clause
   - Using IN, BETWEEN, LIKE , ORDER BY, GROUP BY and HAVING

4. Clause
   - Using Aggregate Functions
   - Combining Tables Using JOINS
   - Subqueries

5. Database Management
   - Creating Views
   - Creating Column Aliases
   - Creating Database Users
   - Using GRANT and REVOKE

Subject Name: OPTIMIZATION TECHNIQUES					
Paper Code: MCAP1204					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I - [10L]

Introduction
The nature of Optimization Techniques, History, Meaning, Models, Principles Problem solving with mathematical models, optimization process.

Linear Programming
Basic LPP and applications, various components of LP problem formulation, Graphical Method, Simplex Method, Big-M method, Duality in linear programming.

Integer programming
Concepts, Formulation, Solution and Applications (Branch & Bound method).

Module II - [10L]

Transportation Problem
Formulation, Initial solution - North-West corner method, Least cost method, Vogel's approximation method (VAM). Optimal solution –Economic interpretation of u_i's and v_j's, MODI method, Properties of closed-loop. Unbalanced transportation problems, Degeneracy and its resolution, Alternate optimal solution, Prohibited transportation route. Maximization transportation problems.

Assignment Problem
Formulation, Optimal solution - Hungarian method. Multiple optimal solution, Maximization problem, Unbalanced assignment problem, Restriction on assignment problem. Travelling salesman problem.

Module III - [10L]

Game theory
Introduction, Decision making under risk, Decision making under uncertainty. Two person Zero Sum game (Pure Strategy and Mixed Strategy), Properties of a game, Maximin and Minimax principles, Method of solving game - Saddle point, Principle of dominance, Algebraic method, Graphical method, Linear Programming method.

Network Optimizations
PERT/ CPM – Introduction, Significance of use, Network components and precedence relationship (AOA and AON diagram), Critical path analysis- Forward pass, Backward pass, Float(slack) of Activity and Event.

Module IV- [10L]

Queuing Theory

Introduction, Basic definitions and notations, Structure of a Queuing system, Axiomatic derivation of the arrival & departure distributions for Poisson Queue, M/M/1 Queuing Model.

Sequencing Model

Introduction, Notation, Terminology and Assumption. Processing of n jobs through two machines, Processing of n jobs through three machines, Processing of n jobs through m machines, Processing of two jobs through m machines.

Text Books:

1. Operations Research: Theory and Applications, J K Sharma, MacMillan
2. Operation Research, KantiSwarup, Gupta Pk, Man Mohan, Sultan Chand & Sons

Reference Books:

1. Operations Research: An Introduction, H. Taha, Prentice'Hall
2. Operations Research, Hillier & Lieberman, TMH

Subject Name: COMPUTER ORGANIZATION AND ARCHITECTURE					
Paper Code: MCAP1205					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	0	0	3	4

Module I - [12L]

Introduction to basic structures and operational concepts, Instruction formats, Instruction execution, sequencing, Addressing modes Control unit – Concepts, Fetching and storing word from/in main memory, Register transfers, Operations, execution of a complete instruction, Hardwired control, Microprogrammed control.

Module II - [8L]

Fixed point Arithmetic - Arithmetic and logical operations of signed numbers and their implementation,
Hardware Multiplier, Booths' multiplier, Booth pair multiplier, Binary Division restoring and non-restoring. IEEE-754 representation of floating point numbers, overflow and underflow.

Module III - [10L]

Memory – Basic concepts, RAM, ROM – different types, Characteristics, Memory design (Linear addressing, interleaved memory) Cache memories, Performance (memory interleaving, hit rate etc.), Memory hierarchy - virtual memory – address translation, Secondary memories Data transfer through programmed I/O, interrupt and DMA, I/O processors.

Module IV - [10L]

Input/output organization: memory mapped, standard (isolated) and linear selection techniques of I/O addressing.

Pipelining - arithmetic & instruction, speedup, vector processing, array processor, Introduction to RISC processor and parallel processing, Bit-Slice processors.

Text Books:

1. Computer Organization – C. Hamacher, Z. Vranesik, S. Zaky, McGraw Hill.
2. Computer Architecture and Organization – John P. Hayes, McGraw Hill.

Reference Books:

1. Computer System Architecture - Morris Mano, PHI.
2. Computer Organization and Architecture - Williams Stallings.

Subject Name: PRINCIPLES OF MANAGEMENT AND ACCOUNTING					
Paper Code: HMTS1201					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	0	0	3	3

Module I - [4L]

Introduction to Business Management

Basic concepts, Management Functions, Planning and decision making, scheduling, organizing, staffing, directing, controlling. Manager as Leader. Human Resource Planning, Human resource development and Organizational Development, Organizational Communication.

Module II - [4L]

Management for Organization

Management control systems: goals, strategies, Managerial economics and financial management, productivity management. Strategic planning. Strategy: firm and its environment, strategies and resources, industry structure and analysis, corporate strategies and its evaluation, strategies for growth and diversification.

Module III - [17L]

Accounting Principles & Financial Accounting

Meaning and Scope of accounting, Accounting Concepts, Principles and Conventions, Accounting Standards – concepts, objectives, benefits, Accounting Policies, basic accounting equation, Accounting as a measurement discipline – valuation principles, accounting estimates. Financial accounting, rules of debit and credit, financial statements and analysis, seven basic steps of the accounting cycle for a sole proprietorship and a merchandising business using subsidiary ledgers and special journals. Books of Accounts leading to the preparation of Trial Balance, Journalize entries for uncollectible receivables including the direct write-off method and the allowance method.

Module IV - [15L]

Overview of Management and Cost Accounting

Conceptual framework of Management Accounting, Meaning, Scope, Objectives and limitation. Cost–Volume profit analysis: Concept of break-even point, Profit volume relation, Margin of safety, Angle of incidence, Break-even point chart, Break even analysis. Introduction to cost accounting, meaning, objectives and advantages of cost accounting.

Text Books:

1. Management: A Systems Approach - Koontz and O'Donnel, TMH.
2. Management: A Global Perspectiv - Weihrich and Koontz, TMH.
3. Financial Accounting - PC Tulsian, Pearson Education.
4. Management Accounting - I.M. Pande, VIKAS.

Reference Books:

1. Management Techniques: A Practical Guide - John Argenti.
2. Management Accounting - Khan & Jain, TMH.

RESOLUTIONS TAKEN AT THE MEETING OF

BOARD OF STUDIES,
COMPUTER APPLICATION CENTRE,
HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

DATE : 05.12.2016
VENUE : MCA Building
TIME : 02:00 pm

Following are the minutes of the BOS meeting:

The course content of MCA 3rd semester under autonomy was prepared by members of Faculty of Computer Application Centre and the Department of Chemistry prior to the meeting. The same were reviewed in the DAC meeting held on 02.12.2016. In the BOS meeting, the course content were modified as per the suggestions of the external experts. The modifications suggested by the experts are summarized below:

1. MCAP2101

   i. Correctness of algorithm is added to the introduction part.

2. MCAP2102

   i. Miscellaneous topic of Module IV is shifted to Module I
   ii. Analog signal and digital signal were deleted from Physical layer of Module I
   iii. Sliding window protocol and slotted ALOHA were added in Data Link layer of Module II
   iv. Introduction to network security was added to the Application layer of Module IV
   v. The other topics of Module IV except Misc topic were shifted to Module III
   vi. Transport layer was shifted to Module IV.

3. MCAP2112

   i. List all the topic of the Network programming precisely.
   ii. In Test bed development and simulators, no specific simulation tool to be mentioned.

4. MCAP2103

   i. Higher Normal Forms were shifted to Module I.
   ii. Distributed Database by Ceri, Pelagatti -to be added in the reference book section.

Read and Confirmed.

5.12.16 05.12.16 5/12/16

Prof. Atal Chowdhuri	**Prof. Sipra Das Bit**	**Prof. Siuli Roy**
Professor,	Professor,	Director,
Computer Science & Engg.,	Computer Science & Tech.,	Computer Application Centre,
Jadavpur University	IIEST, Shibpur	HIT, Kolkata

SERIAL	NAME	SIGNATURE
1.	Dr. Siuli Roy, *Associate Professor & Director, CAC*	5/12/16
2.	Prof. Atal Chowdhuri, *Professor,* *Department of CSE, JU*	05.12.16
3.	Prof. Sipra Das Bit *Professor,* *Department of CST, IIEST, Shibpur*	05.12.16
4.	Mr. Ranoj Saha, *Associate Director,* *Capgemini India Pvt. Ltd., Kolkata*	Absent
5.		
6.	Mr. Souvik Basu, *Assistant Professor and DC, CAC*	05/12/16
7.	Ms. Sudeshna Ghosh *Assistant Professor, CAC*	5/12/2016
8.	Mr. Debabrata Kar, *Assistant Professor, CAC*	5/12/16
9.	Mr. Anirban Kundu *Assistant Professor, CAC*	05/12/2016
10.	Ms. Subhra Pramanik *Assistant Professor, CAC*	5/12/16
11.	Mr. Sandipan Ganguly *Assistant Professor, CAC*	Absent (Invigilation)
12.	Mr. Jyotirmoy Ghosh *Assistant Professor, CAC*	05/12/16
13.	Mr. Palash Ghosh *Assistant Professor, CAC*	05/12/16
14.	Mr. Subhajit Rakshit *Assistant Professor, CAC*	05/12/16.
15.	Mr. Sumon Ghosh *Assistant Professor, CAC*	05/12/2016
16.	Mr. Anandalok Adhya *Assistant Professor, CHE*	Absent

Date : 10.11.2016

To
Prof. Atal Chaudhuri,
Professor,
Department of Computer Science & Engineering,
Jadavpur University,
Kolkata -32

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 05.12. 2016 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

Date : 10.11.2016

To
Mr. Ranoj Saha,
Associate Director,
Capgemini India Pvt. Ltd.,
Kolkata

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 05.12. 2016 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

To
Prof. Sipra Das Bit
Professor and Head,
Computer Science & Technology,
IIEST, Shibpur

Date : 10.11.2016

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Madam,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 05.12. 2016 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Siuli Roy

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

The Heritage

siuli roy <siuli.roy@heritageit.edu>

DAC Meeting for Syllabus Finalization and 2nd BOS Meeting

siuli roy <siuli.roy@heritageit.edu> Tue, Nov 22, 2016 at 1:13 PM
To: anirban kundu <anirban.kundu@heritageit.edu>, arpita roy <arpita.roy@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, indranil dasgupta <indranil.dasgupta@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, sandipan ganguly <sandipan.ganguly@heritageit.edu>, siuli roy <siuli.roy@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, subhajit rakshit <subhajit.rakshit@heritageit.edu>, subhra pramanik <subhra.pramanik@heritageit.edu>, sudeshna ghosh <sudeshna.ghosh@heritageit.edu>, Sudipta Chakraborty1 <sudipta.chakraborty1@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Dear All,

Please note that the DAC meeting for finalizing MCA syllabus for 3rd semester (under Autonomy) will be held on 02/12/2016 at 02:00 PM.

Also note that, the BOS meeting of CAC will be held on 05/12/2016 at 03:00 PM.

Best regards,

Siuli Roy

(1) MCAP2101

Correctness of algo - introduction (added)

(2) MCAP2102

Mod IV Misc. topic shifted to introductory part ie. module I.

i) module I.

ii) Physical layer - delete analog signal & digital signal. mod I.

iii) Mod II. Data link layer - Sliding window protocol added, Slotted ALOHA added.

iv) Mod IV. Appln. layer - Introduction to nw security (only intro is reqd).

v) Misc topics → deleted, rest elements are shifted to mod III.

vi) Transport layer shifted to mod IV.

LAB.

i) Network programming on the following → mention the topic } change of sentence construct

ii) Testbed Development and Simulations

③ MCAP2103

i) Higher normal form - shifted to mod I.

Book → Ceri, Pelagatti distributed database book. suggested by Sipra Ma'am

④ MCAP2104

~~Textbook → Presentations~~

MCA PROGRAMME

(Master of Computer Application)

COURSE CONTENT

2nd Year 1st Semester

Approved by:
Prof. Alak Chaudhuri
Prof. Sipra Das Bit
in BOS of 05.12.2016.

Subject: DESIGN AND ANALYSIS OF ALGORITHM					
Paper Code: MCAP2101					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	0	4	4

Module – I [10L]

Introduction
Algorithm specification, performance analysis - time and space complexity, asymptotic notations, Master theorem, Correctness of algorithms

Divide and Conquer
General method, binary search, quick sort, merge sort, performance analysis; Strassen's matrix multiplication

Lower Bound Theory
Comparison tree, lower bound on comparison-based sorting, sorting in linear time, counting sort.

Module – II [12L]

The Greedy Method
General method, fractional knapsack problem, job sequencing with deadlines, minimum cost spanning trees – Prim's and Kruskal's algorithms.

Dynamic Programming
General method, Shortest path algorithms – Bellman Ford, Floyd Warshall, 0/1 knapsackproblem,traveling salesman problem

Module – III [8L]

Traversal and Search Techniques
Breadth first search and traversal, depth first search and traversal, bidirectional search.

Pattern Matching
Brute-force algorithm, Knuth-Morris-Pratt algorithm

Backtracking
General method, 8 queens problem, graph colouring

Module – IV [10L]

Branch and Bound
General method, least cost search, 15-puzzles problem

Introduction to NP-completeness
Basic concepts, the classes P,NP, NP-hard and NP-complete, Relative hardness of problems andpolynomial time reductions. Satisfiability problem, Clique Decision Problem, Vertex Cover Problem

Approximation Algorithms
Necessity of approximation scheme, performance guarantee,polynomial time approximationschemes, approximation algorithms forvertex cover, travelling salesman problem.

Text Books:

1. Introduction to Algorithms, Cormen et al, PHI Learning
2. Fundamentals of Computer Algorithms, Horowitz, Sahni, Orient Longman

Reference Books:

1. The Design and Analysis of Computer Algorithms, Aho, Hopcroft, Ullman, Pearson
2. Algorithm Design, Kleinberg, Tardos, Pearson
3. The Art of Computer Programming, Knuth, Pearson

Subject: ALGORITHM LAB					
Paper Code: MCAP2111					
Contact hrs. per week	L	T	P	Total	Credit Point
	0	0	4	4	3

Programs related to

- (Divide and Conquer) Binary Search, Merge Sort, Quick Sort, finding maximum and minimum element from an array of integers
- (Greedy method) Minimum cost spanning trees by Prim's and Kruskal's algorithm, job sequencing with deadlines
- (Dynamic programming) single source shortest path – Bellman Ford, all pair shortest path – Floyd Warshall, traveling salesman problem
- (Graph traversal) BFS, DFS
- (Pattern matching) brute-force, KMP
- (Backtracking) 8 queens problem
- (Branch and Bound) 15 puzzles problem

Subject Name: DATA COMMUNICATION & COMPUTER NETWORKS					
Paper Code: MCAP 2102					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I – Data Communication Fundamentals and Physical Layer [10L]

Overview of Data Communication & Networking
Introduction: Data Communication Systems, Networks, Protocols & Standards, The Internet
Layered Tasks: Utility of Layering, ISO/OSI Reference Model, TCP/IP Reference Model, Comparison between OSI and TCP/IP
Connecting Devices: Repeater, Hub, Bridge, Switch, Router, Gateway
Switching: Overview of – Circuit Switching, Message Switching, Packet Switching, Virtual Circuit Switching

Physical Layer
Signals: Data & Signals, Data Rate Limits, Transmission Impairments
Digital Transmission: Line Coding, Sampling, Transmission Mode
Analog Transmission: Modulation of Digital Data, Modulation of Analog Signals
Multiplexing: FDM, TDM, WDM
Transmission Media: Guided Media, Unguided Media

Module II – Data Link Layer and MAC Sublayer [10L]

Data Link Layer
Framing: Character Stuffing, Bit Stuffing
Error Detection & Correction: Types of Error – Single Bit Error, Error Detection, Error Correction
Flow Control: Stop – And – Wait ARQ, Sliding Window Protocols
Data Link Layer Protocols: HDLC, PPP

Medium Access Sub layer
Random Access: ALOHA, Slotted ALOHA, CSMA/CD, CSMA/CA
Controlled Access: Reservation, Polling, Token Passing
LAN: Ethernet (Traditional, Fast and Gigabit), FDDI, DQDB

Module III – Network and Transport Layer [10L]

Network Layer
Internetworking, Addressing and Routing: Internetworking, Addressing (Internet Address, Classful Addressing, Subnetting), Routing (Static and Dynamic Routing, Distance Vector Routing, Link State Routing)
Network Layer Protocols: ARP, RARP, IP, ICMP and IGMP, IPv6
Network Monitoring and Management: Concepts of Wireshark andSNMP

Module IV – Application Layer and Miscellaneous Topics [10L]

Transport Layer
Process-to-Process Delivery, UDP, TCP: Process to Process Delivery, User Datagram Protocol and Transmission Control Protocol

Congestion Control & Quality of Service: Data Traffic, Congestion and Congestion Control, Quality of Service (QOS), Techniques to improve QOS – Leaky Bucket and Token Bucket Algorithms

Application Layer
Application layer protocols: DNS, Telnet, FTP, SMTP, HTTP, WWW
Introduction to Network Security

Text Books:

1. Data Communications & Networking – B.A. Forouzan, TMH
2. Computer Networks , Andrew S. Tanenbaum, Pearson Education.
3. Data and Computer Communication, William Stallings, PHI.

Reference Books:

1. High speed Networks and Internets, William Stallings, Pearson Education.
2. Cryptography and Network Security, William Stallings, PHI.
3. Computer Networking: A Top Down Approach, Kurose & Ross, Pearson Education.

Subject Name: UNIX AND NETWORK PROGRAMMING LAB					
Paper Code: MCAP2112					
Contact hrs per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

UNIX Fundamentals

1. Basic UNIX Commands
2. Writing Shell Scripts

Network Programming on the following (To be implemented in Java/C/C++)

1. IPC: a) Pipes b) FIFO
2. File transfer using message queue form of IPC
3. TCP sockets (like date and time server & client, echo server & client, etc.)
4. UDP sockets (like simple DNS)
5. Raw sockets (like packet capturing and filtering)
6. Sliding window protocol and cyclic redundancy check
7. Routing protocols
8. Study of TCP/UDP performance
9. TCP client and server application to transfer file
10. UDP client and server application to transfer a file
11. RPC

Testbed Development and Simulators

1. Creating a LAN
2. Use of Network Simulators for Network Modeling (basic ideas/ demonstration only)

Reference Books:

1. Advance Unix Programming Richard Stevens, Second Edition Pearson Education
2. Advance Unix Programming, N.B. Venkateswarlu, BS Publication.

Subject Name: DATABASE MANAGEMENT SYSTEM II					
Paper Code: MCAP2103					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I – [10L]

Higher Normal Forms

Overview of Lossless Join Decomposition and Dependency Preservation, Multi-valued Dependency and 4NF, Project-Join Decomposition and 5NF, domain-key and DKNF.

Transaction Processing

Transaction Concept and State, Implementation of Atomicity and Durability.

Concurrency Control

Executions, Serializability, Recoverability, Implementation of Isolation.
Concurrency Control Techniques: Lock based Protocols, Timestamp based Protocols,Validation based Protocols.
Multiple Granularity, Multiversion Schemes, Deadlock Handling.

Module II – [10L]

Recovery Management

Failure Classification, Storage Structure, Recovery and Atomicity, Log-based Recovery, Shadow Paging, Recovery with Concurrent Transactions, Buffer Management, Failure with Loss of Nonvolatile Storage, Advanced Recovery Techniques.

Case Study: RDBMS Architecture

Memory Structures, background processes, disk utilization structures, Starting and stopping the database instance, Creating a Database.

Module III – [10L]

Introduction to Procedural Language/Structured Query Language (PL/SQL)
PL/SQL block structure, Variables, Control Structure and iteration, Implicit and Explicit Cursors, Stored procedures and functions, PL/SQL packages, Triggers, Locks.

Module IV – [10L]

Introduction to Embedded SQL

Pro*C syntax, Host variables, Static Vs. Dynamic SQL.

Introduction to Distributed Database Management System

Distributed DBMS Architecture, Distributed Query Processing, Distributed Concurrency Control , Distributed DBMS Reliability, Parallel Database Systems.

Introduction to Temporal Database Management System

Valid time and transaction time, Discrete bounded linear flow of time and the temporal structure, System-maintained transaction time, Temporal primary keys, Temporal queries at current time, Time points in the past or future or over durations.

Introduction to Object-Oriented Database Management System

Data types and Object, Evolution of Object Oriented Concepts, Characteristics of Object Oriented Data Model.

Object Hierarchies – Generalization, Specialization, Aggregation.

Object Schema. Inter-object Relationships, Similarities and difference between Object Oriented Database model and Other Data models.

Concept of Grid, Cloud and Graph database.

Text Books:

1. Database System Concepts – A. Silberschatz, Henry F. Korth, S. Sudarshan, TMH
2. An introduction to database systems - C.J. Date, Pearson

Reference Books:

1. Fundamentals of database systems - Ramez Elmasri, Shamkant B. Navathe, Pearson
2. Database Systems: The Complete Book - Jeffrey D. Ullman, Jennifer Widom, PHI
3. Distributed Databases Principles and Systems - Ceri, Pelagatti, TMH

Subject Name: DBMS II LAB					
Paper Code: MCAP2113					
Contact hrs per week:	L	T	P	Total	Credit Point
	-	-	4	4	3

Problems on -

- SQL

  Creation of a database objects with constraints. Deletion and modification of database objects.

  Performing Insertion, Deletion, Modification, Alteration and Viewing records based on conditions.

  Creation of Views, Synonyms, Sequence, Indexes, Save points.

- PL/SQL overview
  - Structure of PL/SQL block.
  - Using PL/SQL variables, taking user input and displaying the output.
  - PL/SQL Control structures(Conditional control, Iterative control, Sequential control)
  - Built-in PL/SQL functions
  - PL/SQL composite datatype (Tables,ROWTYPE)
  - Subprograms
    - Procedures
    - Functions
  - Cursor Management
    - Implicit Cursor
    - Explicit Cursor
    - Cursor for-loop
  - Database Triggers
  - Error Handling
  - Packages

Reference Books:

1. SQL, PL/SQL The Programming Language of Oracle – Ivan Bayross, BPB

Subject: OPERATING SYSTEMS					
Paper Code: MCAP2104					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	1	-	4	4

Module – I [8L]

Introduction

Introduction to Operating Systems, Concept of batch-processing, single and multi-programming, single and multi-processing, multi-tasking, real time , distributed and parallel processing.

Process and Scheduling

Concept of process, state diagram, process control block, Scheduling-short, medium and long term scheduling.

CPU Scheduling – criteria, types of scheduling, non-preemptive and preemptive scheduling algorithms like: First Come First Serve (FCFS), Shortest Job First/Next (SJF/N), Shortest Remaining Time Next (SRTN), Round Robin (RR), Highest Response Ratio Next (HRRN), Priority based scheduling, Multilevel queue scheduling, Multilevel feedback queue scheduling.

Threads

Concept, process vs thread, kernel and user threads, multi-threading models.

Module – II [12L]

Inter-process Communication

Shared memory approach, message passing, FIFO, concept of semaphore, critical region, monitor.

Process Synchronization

Concepts, race condition, mutual exclusion, critical section problem and its solutions; synchronization tools - semaphore, semaphore with queue, monitor; discussion of synchronization problems like producer-consumer, readers-writers, dining philosophers, sleeping-barber.

Module – III [10L]

Deadlock

Characterization, Prevention, avoidance, detection, recovery.

Memory Management

Address space and address translation; memory partitioning - static and dynamic, different types of fragmentation, swapping, paging, segmentation, virtual memory concepts, demand paging, performance, page replacement algorithms – FIFO, LRU, Optimal page replacement, variants of LRU; frame allocation, thrashing, working set strategy.

Module – IV [10L]

Disk Management

Disk structure, disk scheduling algorithms – FCFS, SSTF, SCAN, C-SCAN, LOOK, C-LOOK; disk formatting, boot block, bad blocks.

File Systems
File and operations on it, file organization and access; file allocation; directory structures, file allocation methods – contiguous, linked, indexed; free space management – bit vector, linked list, grouping.

I/O Management
I/O hardware, polling, interrupts, DMA, application I/O interface – block and character devices, network devices, clocks and timers, blocking and non-blocking I/O; kernel I/O subsystem – scheduling, buffering, caching, spooling, error handling.

Protection and Security
Concepts of domain, Access matrix and its implementation, access control. Security concepts, program threats, system threats, threat monitoring, cryptography as security tool, user authentication.

Text Books:

1. Operating System Concepts, Silberschatz, Galvin, Gagne, Wiley.
2. Operating Systems Design and Implementation, Andrew S. Tanenbam, Prentice Hall.

Reference Books:

1. Operating Systems, Dietel, Dietel, Choffnes, Prentice Hall
2. Operating Systems – Internals and Design Principles, Stallings, Pearson.

Subject: ENVIRONMENT & ECOLOGY					
Paper Code: CHEM2101					
Contact hrs. per week	L	T	P	Total	Credit Point
	3	-	-	3	3

Module – I [9L]

Basic components of Environment & Ecology

Basic ideas of environment and its component.
Mathematics of population growth: exponential and logistic and associated problems, definition of resource, types of resource, renewable, non-renewable, potentially renewable, Population pyramid and Sustainable Development.
General idea of ecology, ecosystem – components, types and function
Structure and function of the following ecosystem: Forest ecosystem, Grassland ecosystem, Desert ecosystem, Aquatic ecosystems, Mangrove ecosystem (special reference to Sundarban); Food chain [definition and one example of each food chain], Food web.
Biogeochemical Cycle- definition, significance, flow chart of different cycles with only elementary reaction [Oxygen, carbon, Nitrogen, Phosphorus, Sulphur.
Biodiversity- types, importance, Endemic species, Biodiversity Hot-spot, Threats to biodiversity, Conservation of biodiversity.

Module – II [9L]

Air pollution and control
Atmospheric Composition: Troposphere, Stratosphere, Mesosphere, Thermosphere, Tropopause and Mesopause.
Green house effects: Definition, impact of greenhouse gases on the global climate and consequently on sea water level, agriculture and marine food. Global warming and its consequence, Control of Global warming. Acid rain: causes, effects and control. Earth's heat budget, carbon capture, carbon footprint
Lapse rate: Ambient lapse rate, adiabatic lapse rate, atmospheric stability, temperature inversion (radiation inversion). Atmospheric dispersion, Maximum mixing depth
Definition of pollutants and contaminants, Primary and secondary pollutants: emission standard, criteria pollutant. Sources and effect of different air pollutants- Suspended particulate matter, oxides of carbon, oxides of nitrogen, oxides of sulphur, particulate, PAN.
Smog: Photochemical smog and London smog. Depletion Ozone layer: CFC, destruction of ozone layer by CFC, impact of other green house gases, effect of ozone modification
Standards and control measures: Industrial, commercial and residential air quality standard, control measure (ESP, cyclone separator, bag house, catalytic converter, scrubber (ventury), Statement with brief reference).

Module – III [9L]

Water Pollution and Control
Hydrosphere, Hydrological cycle and Natural water. Pollutants of water, their origin and effects: Oxygen demanding wastes, pathogens, nutrients, Salts, thermal application, heavy metals, pesticides

River/Lake/ground water pollution: River: DO, 5 day BOD test, Unseeded and Seeded BOD test, BOD reaction rate constants, COD.
Lake: Eutrophication [Definition, source and effect]. Ground water: Aquifers, hydraulic gradient, ground water flow (Definition only)
Water Treatment system [coagulation and flocculation, sedimentation and filtration, disinfection, hardness and alkalinity, softening]
Waste water treatment system, primary and secondary treatments [Trickling filters, rotating biological contractor, Activated sludge, sludge treatment, oxidation ponds]
Water pollution due to the toxic chemicals effects: Lead, Mercury, Cadmium, Arsenic

Noise Pollution
Definition of noise, effect of noise pollution, noise classification [Transport noise, occupational noise, neighbourhood noise]. Definition of noise frequency, noise pressure, noise intensity, noise threshold limit value, equivalent noise level, L_{10} (18hr Index), effective perceived noise level.
Noise pollution control.

Module – IV [9L]

Land Pollution
Solid Waste: Municipal, industrial, commercial, agricultural, domestic, pathological and hazardous solid wastes, electronic waste
Recovery and disposal method- Open dumping, Land filling, incineration, composting, recycling.

Social Issues, Health and Environment
Environmental disasters: Bhopal gas tragedy, Chernobyl disaster, Three Mile Island disaster, cancer and environment: carcinogens, teratogens and mutagens (general aspect)
Environmental impact assessment, Environmental audit, Environmental laws and protection act of India.
Energy audit, Green building, Green sources of energy, Concept of Green Chemistry, Green catalyst, Green solvents (replacement of VOC)

Text Books:

1. Masters, G. M., "Introduction to Environmental Engineering and Science", Prentice-Hall of India Pvt. Ltd., 1991.
2. De, A. K., "Environmental Chemistry", New Age International.
3. Asim K. Das, Environmental Chemistry with Green Chemistry, Books and Allied P. Ltd

Reference Books:

1. S. C. Santra, Environmental Science, New Central Book Agency P. Ltd.
2. Gour Krishna Das Mahapatra, Basic Environmental Engineering and Elementary Biology, Vikas Publishing House P. Ltd.

RESOLUTIONS TAKEN AT THE MEETING OF

BOARD OF STUDIES,
COMPUTER APPLICATION CENTRE,
HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

DATE : 20.05.2016
VENUE : MCA Block, Ground Floor
TIME : 02:00 pm

The course structure and course content of MCA 1st year under autonomy was prepared by members of Faculty of Computer Application Centre and the Department of Humanities prior to the meeting. The same were reviewed in the DAC meeting held on 16.05.2016. In the BOS meeting, the course structure and course content were modified as per the suggestions of the external experts. The modifications suggested by the experts are summarized below:

1. Prof. Atal Chaudhuri changed the name of the MCA 1st semester paper MCAP 1101 from Digital Logic and Computer Organization to Digital Logic and Design.
2. Prof. Sipra DasBit suggested that the MCA 1st semester paper MCAP 1102 be renamed as Introduction to Programming which was earlier named as Introduction to Computing.
3. Prof. Atal Chaudhuri and Prof. Sipra DasBit introduced the paper Information System Analysis and Design (MCAP 1105) in MCA 1st semester course.
4. Prof. Atal Chaudhuri introduced the paper Computer Organization and Architecture (MCAP 1205) in MCA 2nd semester course.
5. Ms. Saptaparna Roy suggested the paper code of the following papers:
    - MCA 1st semester paper Business English to HMTS 1102
    - MCA 1st semester paper Language Practice Lab - HMTS 1112
    - MCA 2nd semester paper Principles of Management and Accounting - HMTS 1201
    - MCA 4th semester paper Human Values and Professional Ethics - HMTS 2201
    - MCA 5th semester paper Personality Development and Group Discussion - HMTS 3121

6. Prof. Atal Chaudhuri renamed the MCA 5th semester elective paper MCAP 3160 from Network Security and Cryptography to Cryptography and Network Security.
7. Prof. Sipra DasBit and Prof. Atal Chaudhuri introduced Grand Viva (MCAP 3296) in MCA 5th semester.
8. Prof. Atal Chaudhuri and Prof. Sipra DasBit reviewed the course content of all papers of MCA 1st and 2nd semesters and suggested modifications were incorporated.

Read and Confirmed.

Prof. Atal Chaudhuri Professor, Department of Computer Science & Engineering, Jadavpur University	Prof. Sipra Das Bit Professor, Computer Science & Technology, IIEST, Shibpur	Prof. Siuli Roy Director, Computer Application Centre, HIT, Kolkata
External Expert, BOS - CAC	*External Expert, BOS - CAC*	*Chairman, BOS - CAC*

Dated: 05.12.2016

HERITAGE INSTITUTE OF TECNOLOGY
KOLKATA
COMPUTER APPLICATION CENTRE
LIST OF MEMBERS PRESENT AT BOS MEETING on 20.05.2016

SERIAL	NAME	Signeture
1.	Prof. (Dr.) Atal Chaudhuri, *Professor, Department of CSE, Jadavpur University*	20.05.16
2.	Prof. (Dr.) Sipra DasBit, *Professor, Department of CST, IIEST, Shibpur*	20.05.16
3.	Prof. (Dr.) Siuli Roy, *Associate Professor & Director*	20/5/16
4.	Prof. Souvik Basu, *Assistant Professor and Coordinator*	20.05.2016
5.	Prof. Sudeshna Ghosh *Assistant Professor*	20/5/2016
6.	Prof. Debabrata Kar, *Assistant Professor*	
7.	Prof. Anirban Kundu *Assistant Professor*	20/05/2016
8.	Prof. Subhra Pramanik *Assistant Professor*	20/5/16
9.	Prof. Sandipan Ganguly *Assistant Professor*	20.05.2016
10.	Prof. Jyotirmoy Ghosh *Assistant Professor*	20/05/16
11.	Prof. Palash Ghosh *Assistant Professor*	20/5/16
12.	Prof. Subhajit Rakshit *Assistant Professor*	20/05/16
13.	Prof. Samapti Banerjee *Assistant Professor*	ABSENT
14.	Prof. Sumon Ghosh *Assistant Professor*	

15. Prof. Anandalok Audhya
Assistant Professor

Anandalok Audhya
DC, Chemistry & Environment
HITK. 20.05.2016

16. Prof. Saptaparna Roy
Assistant Professor

Saptaparna Roy 20/05/16
DC, Dept. of Humanities

To
Prof. Atal Chaudhuri,
Professor,
Department of Computer Science & Engineering,
Jadavpur University,
Kolkata -32

Date : 20.04.2016

Sub: *Invitation for attending the first BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

You are aware that Heritage Institute of Technology has been granted autonomous status by the UGC. In accordance with Statutes and as per UGC guidelines, a Departmental Board of Studies (BOS) for Computer Application Centre has been constituted.

We have the privilege to have you as an external expert in our BOS. Please note that the first BOS Meeting of Computer Application Centre is scheduled on 20.05. 2016 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

Date : 20.04.2016

To
Prof. Sipra Das Bit
Professor and Head,
Computer Science & Technology,
IIEST, Shibpur

Sub: *Invitation for attending the first BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Madam,

You are aware that Heritage Institute of Technology has been granted autonomous status by the UGC. In accordance with Statutes and as per UGC guidelines, a Departmental Board of Studies (BOS) for Computer Application Centre has been constituted.

We have the privilege to have you as an external expert in our BOS. Please note that the first BOS Meeting of Computer Application Centre is scheduled on 20.05. 2016 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

To
Mr. Ranoj Saha,
Associate Director,
Capgemini India Pvt. Ltd.,
Kolkata

Date : 20.04.2016

Sub: *Invitation for attending the first BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

You are aware that Heritage Institute of Technology has been granted autonomous status by the UGC. In accordance with Statutes and as per UGC guidelines, a Departmental Board of Studies (BOS) for Computer Application Centre has been constituted.

We have the privilege to have you as an external expert in our BOS. Please note that the first BOS Meeting of Computer Application Centre is scheduled on 20.05. 2016 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

The Heritage

siuli roy <siuli.roy@heritageit.edu>

Syllabus and BOS Meeting of CAC

siuli roy <siuli.roy@heritageit.edu> Thu, Apr 21, 2016 at 12:34 PM
To: anirban kundu <anirban.kundu@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, indranil dasgupta <indranil.dasgupta@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, samapti banerjee <samapti.banerjee@heritageit.edu>, sandipan ganguly <sandipan.ganguly@heritageit.edu>, siuli roy <siuli.roy@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, subhajit rakshit <subhajit.rakshit@heritageit.edu>, subhra pramanik <subhra.pramanik@heritageit.edu>, sudeshna ghosh <sudeshna.ghosh@heritageit.edu>, Sudipta Chakraborty1 <sudipta.chakraborty1@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, arpita roy <arpita.roy@heritageit.edu>

Dear All,

Please note that the DAC meeting for drafting new MCA syllabus will be held on 11/5/2016 at 10:30 AM.

Also note that, the first BOS meeting of MCA department will be held on 20/5/2016 at 2:00 PM.

Best regards,

Siuli Roy

MCA PROGRAMME

(Master of Computer Application)

COURSE CONTENT

1st year 1st Semester

Approved in A.C.

Approved by:
Prof. Atal Chaudhuri
Prof. Sipra Das Bit
in BOS of 20.05.2016.

Subject Name: DIGITAL LOGIC ~~AND COMPUTER ORGANIZATION~~ Design					
Paper Code: MCAP 1101					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	0	0	3	4

Module I – [10L]

Number System

Data and number systems; Binary, Octal and Hexadecimal representation and their conversions; BCD, ASCII, EBDIC, Gray codes and their conversions; Fixed point representation of fractional number. Signed binary number representation with 1's and 2's complement methods, Binary arithmetic.

Module II – [10L]

Logic gates- truth tables and circuits; Representation in SOP and POS forms; Minimization of logic expressions by algebraic method, Kmap method, Quine Mc Clusky's Method.

Module III – [10L]

Combinational Circuits and Memory

Combinational circuits- Adder and Subtractor circuits; Applications and circuits of Encoder, Decoder, Multiplexer, De-Multiplexer and Parity Generator. Overview of Memory Systems. Design of combinational circuits-using ROM. Overview of Programming logic devices and gate arrays (PLAs and PLDs).

Module IV – [10L]

Sequential Circuits

Sequential Circuits - Basic memory element - S-R, J-K, D and T flip flops; Registers and counters and their design, Irregular counter, State table and state transition diagram; Sequential circuits design methodology.

Text Book:

1. Digital Logic And Computer Design - M. Morris Mano, Pearson.
2. Digital Logic Design, Mansaf Alam - Bashir Alam, PHI.

Reference Books:

1. Digital Design: Basic Concepts and Principles - Mohammad A. Karim, CRC Press.
2. Digital Logic Design Principle - Bradley Carlson, Norman Balabanian, Wiley India.

Subject Name: DIGITAL LOGIC LAB					
Paper Code: MCAP1111					
Contact hrs per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

Problems related to

- Basic skills lab in using Personal Computer and common software tools
- Realization of Logic Gates
- Realization of Flip- Flop using logic gates
- Realization of Multiplexer
- Realization of Coder & Decoder
- Realization of Adder and Subtractor using logic gates

Subject Name: INTRODUCTION TO PROGRAMMING					
Paper Code: MCAP1102					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	1	0	4	4

Module I -[10L]

Introduction
History of Computing, Evolution of Programming Languages, Compilers, Familiarization with UNIX.

Problem Solving Method
Algorithm, Flowchart, Problem-Solving Methodology- Tools, Pseudocode.

Overview of C language
C Standards, Structure of a C Program, C Libraries, Steps of Compilation of a C Program.

Expressions
Basic Data Types, Variables, Type Qualifiers, Storage Class Specifiers, Variable Scopes, Constants, Operators, Operator Precedence, Expression Evaluation, Type Conversion in Expressions, Type Casting.

Console I/O
Reading and Writing Characters, Reading and Writing Strings, Formatted Console I/O.

Module II - [10L]

Control Statements
Selection Statements (if, switch-case), Iteration Statements (for loop, while loop, dowhileloop), Jumping Statements (return, goto, break, exit, continue).

Function:
Functions and Modular Programming, General Form, Function Prototypes, Library Functions, Parameter Passing Mechanisms, Storage Classes, Recursive function.

Module III - [10L]

Arrays and Strings
Single Dimension Arrays, Two Dimension Arrays, Multidimensional Arrays, Strings, Arrays of Strings, String Library Functions.

Pointer
Pointers and Memory Addressing. Pointer Variables, Pointer Arithmetic, Pointer Expressions, Pointers and Arrays, Functions and Pointers, Dynamic Memory Allocation, Command Line Arguments.

Module IV - [10L]

Structures, Unions, Enumerations

Structures, Arrays of Structures, Structure and Pointers, Unions, Bit Fields, Enumerations, Typedef Keyword.

File I/O

Concept of Files, File operations, Text Files and Binary Files.

The Preprocessor

Preprocessor Directives, Macros, File Inclusion.

Text Books:

1. Programming with C - Gottfried, TMH.
2. Programming in C - Balagurusamy, Tata McGraw Hill.

Reference Books:

1. C Programming Made Easy - Raja Ram, SCITECH.
2. The C Programming Language - Kerninghan Ritchie, PHI.

Subject Name: PROGRAMMING LAB					
Paper Code: MCAP1112					
Contact hrs per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

Programs related to

- Control Structures
- Array (1-d, 2-d)
- Functions
- Dynamic Memory Allocation
- String Handling
- Structures, Union
- File Handling

Subject Name: NUMERICAL AND STATISTICAL TECHNIQUES					
Paper Code: MCAP1103					
Contact hrs per week:	L	T	P	Total	Credit points
	3	1	0	4	4

Module I – [10L]

Probability

Random Experiment, Sample Space, Random Events, Probability of Events, Probability of Non-disjoint Events (Theorems), Counting Techniques Applied to Probability Problems, Conditional Probability, Independent Events, Bayes' Theorem and Related Problems.

Random Variable and Probability Distribution

Probability Mass Function, Probability Density Function and Distribution Function, Distributions: Binomial, Poisson and Normal Expectation and Variance, Moment Generating Function, Reproductive Property of Binomial, Poisson and Normal Distribution (proof not required), Chebychev's Inequality (statement) and Problems.

Module II – [10L]

Sampling and Estimation

Population, Sample; Statistic, Estimation of Parameters (consistent and unbiased), Sampling Distribution of Sample Mean and Sample Variance (proof not required), Point Estimation.
Overview of Testing of Hypothesis, Type I and Type II errors.

Module III – [10L]

Numerical Analysis and Errors

Introduction, Sources of Errors, Significant Figures: Absolute, Relative and Percentage Errors.

Interpolation

Introduction, Lagrange's Interpolation Formula, Divided Differences and Properties, Newton's Forward & Backward Interpolation Formula. Newton's Divided Difference Formula, Error in Difference Table, Problems and Solutions.

Numerical Differentiation and Integration

Differentiation based on Newton's Forward and Backward Interpolation Formula. Trapezoidal Rule and Simpson's $1/3^{rd}$ Rule, Errors in Numerical Integration Formulae, Problems and Solutions.

Module IV – [10L]

Solution of System of Linear Equations

Introduction, Gauss Elimination Method and Gauss-Seidel Method, Problems and Solutions.

Solution of Algebraic and Transcendental Equation

Introduction, Bisection Method, Regula-Falsi Method, Newton-Raphson Method, Problems and Solutions.

Solution of Ordinary Differential Equations

Introduction, Euler's Method, Runge - Kutta Method (2nd and 4th order), Modified Euler's Method, Problems and Solutions.

Text Books:

1. Statistical Methods (Volume 1 and 2) – N. G. Das, TMH.
2. Introductory Numerical Analysis – Dutta and Jana, Shreedhar Prakashani.

Reference Books:

1. Mathematical Statistics – S.C. Gupta and V. K. Kapoor, S. Chand.
2. Engineering Mathematics: Volume IIIA – B. K. Pal & K. Das, U. N. Dhur & Sons Pvt. Ltd.
3. Numerical Analysis - S. Ali Mollah.
4. Numerical Analysis - James B. Scarborough.

Subject Name: DISCRETE MATHEMATICS					
Paper Code: MCAP1104					
Contact hrs per week:	L	T	P	Total	Credit Points
	3	0	0	3	4

Module–I –[10L]

Abstract Algebra
Overview of Discrete Mathematics, Set, Relations, Mappings, Poset, lattice, Hasse diagram, Vector Space.

Boolean algebra
Definition of Boolean algebra, Boolean function Simplification.

Mathematical Logic
Propositions, Connectives, Conditionals and Biconditionals, Well Formed Formulas (WFF), Tautologies, Equivalence formulas, duality law, Normal Forms, Predicate Calculus, free and bound variables.

Module-II-[10L]

Permutation and Combination
Concepts of Permutations and Combinations, Pigeon-hole principle, Euclidean algorithm for Linear Diophantine Equation, Basic Counting Concepts, problems, solutions.

Generating- function and Recurrence- relation
Generating Function, Recurrence relations, Linear recurrence relations with constant Coefficients, Solution by Generating Function.

Module –III-[10L]

Graph Theory
Basic Concepts of Graphs, Trees, Forest, Adjacency and Incidence Matrices, Minimum Spanning Tree (Prim's and Kruskals Algm), Shortest Path (Dijkstra's Algm), Planar Graph. Various applications of Graph Theory in Computer Science.

Module IV-[10L]

Mathematical Computing
Finite Automata, Finite Automata-Construction, DFA, NFA, State minimization, Mealy M/C, Moore M/C, problem and solution.

Definition Of Grammars – Unrestricted grammar, Context-sensitive grammar, Context-free grammar, Regular grammar.

Text Books:

1. Discrete Mathematics and Its Applications, K.H. Rosen, TMH.
2. Elements of Discrete Mathematics, C.L. Liu, McGraw-Hill.
3. Discrete Mathematical Structures. Kolman, Busby and Ross, PHI.

Reference **Books:**

1. Discrete Mathematics Theory, Problems and Solutions - Dipendra Nath Ghosh, Academic Publishers.
2. Graph Theory with Applications to Engineering and Computer Science - N. Deo, PHI.
3. Theory of Computer Science by K.L.P Mishra and N. Chandrasekaran, PHI.

Subject Name: MANAGEMENT INFORMATION SYSTEM					
Paper Code: MCAP1105					
Contact hrs per week:	L	T	P	Total	Credit Points
	3	0	0	3	4

Module I – [10L]

Introduction to systems and Basic systems concepts, Types of systems, The systems Approach, Information systems-Definition and characteristics, types of Information, role of Information in Decision Making.

Introduction to Information Analysis and Design Tools-Decision Tree, Decision Table, Structured Analysis, Dataflow Analysis, Data dictionary, Structured Flow Chart, HIPO, Warnier/ ORR diagram

Module II – [10L]

An overview of Management Information System: Definition and Characteristics, Components of MIS, Hierarchy of Management Activity. Information requirements and Levels of Management, Model of decision making, structured Vs un-structured decisions, Formal vs Information systems

Module III – [10L]

Storage and retrieval of data -transaction processing, office automation and information processing, Virtual office system, control functions, Decision making process, phases in the decision making process, Intelligence and design phases, concepts of decision making, Behavioral models of the decision maker/decision making

Module IV- [10L]

Planning & implementation of Information Systems, Executive information Systems, Decision Support Systems, Expert Systems, Knowledge Based System. Introduction to Computer crime, Security & ethical challenges.

Text Books:

1. Management Information System - W.S.Jawadekar, TMH.
2. Management Information Systems - Loudon and Loudon, Pearsons Educations.
3. Analysis & Design of Information System - James A. Senn.

Reference Books:

1. Management Information Systems – Conceptual foundations, Structure and Development - Gordon B. Davis, Margrethe H. Olson.
2. Management Information System – Oz, Thomson Learning.
3. Management Information System - James O'Brien, TMH.
4. Information Systems the foundation of E-Business - Steven Alter, Person education.

Subject Name: BUSINESS ENGLISH					
Paper Code: HMTS1102					
Contact hrs per week:	L	T	P	Total	Credit Point
	3	0	0	3	3

Module I – [10L]

Communication Skill
Definition, nature & attributes of Communication
Process of Communication
Models or Theories of Communication
Types of Communication
Levels or Channels of Communication
Barriers to Communication

Module II – [10L]

Business Communication- Scope & Importance
Writing Formal Business Letters
Writing Reports
Organizational Communication: Agenda & minutes of a meeting, notice, memo, circular
Project Proposal
Technical Report Writing
Organizing e-mail messages
E-mail etiquette
Tips for e-mail effectiveness

Module III – [10L]

Language through Literature
Modes of literary & non-literary expression
Introduction to Fiction, (An Astrologer's Day by R.K. Narayan and Monkey's Paw by W.W. Jacobs), Drama (The Two Executioners by Fernando Arrabal) or (Lithuania by Rupert Brooke) & Poetry (Night of the Scorpion by Nissim Ezekiel and Palanquin Bearers by Sarojini Naidu)

Module IV – [10L]

Grammar in usage (nouns, verbs, adjectives, adverbs, tense, prepositions, voice change) -to be dealt with the help of the given texts.

Text Books:

1. Theories of Communication: A Short Introduction - Armand Matterlart and Michele Matterlart, Sage Publications Ltd.
2. Professional Writing Skills, Chan, Janis Fisher and Diane Lutovich. San Anselmo, CA: Advanced Communication Designs.
3. Business English - Hauppauge, Geffner, Andrew P., New York: Barron's Educational Series.

Reference Books:

1. Writing and Speaking at Work: A Practical Guide for Business Communication - Edward P.Bailey, Prentice-Hall.
2. Business and Administrative Communication - Kitty O. Locker, McGraw-Hill/ Irwin.
3. Intercultural Business Communication - Lillian Chaney and Jeanette Martin, Prentice Hall.

Subject Name: LANGUAGE PRACTICE LAB					
Paper Code: HMTS1112					
Contact hrs per week:	L	T	P	Total	Credit Point
	0	0	4	4	3

Module I

Introduction to Linguistics
Phonetics-Vowel and Consonant Sounds (Identification &articulation)
Word- stress, Intonation (Falling and rising tone), Voice Modulation, Accent training
Conversational Skills

Module II

Writing Skill
Writing Dialogue- (formal and informal)
Descriptive, narrative and expository writing
Writing with a purpose---Convincing skill, argumentative skill/negotiating Skill (These skills will be repeated in oral skills).
Writing reports/essays/articles—logical organization of thoughts
Job Application Letter
CV& Resume
Book review

Module III

Major Areas of Formal, Verbal Communication
Interpersonal Speaking & Public Speaking
Group Discussion
Oral Presentation, both technical and general
Interview Techniques

MCA PROGRAMME
(Master of Computer Application)

COURSE STRUCTURE

Approved in A.C.

Approved by:
Prof. Atal Chaudhuri
Prof. Sipra Das Bit
in BOS of 20.05.2016.

1st Year 1st Semester:

A. THEORY							
SERIAL NO	CODE	THEORY	CONTACTS (PERIODS/WEEK)				CREDITS
			L	T	P	TOTAL	
1	MCAP1101	Digital Logic Design	3	-	-	3	3
2	MCAP1102	Introduction to Programming	3	1	-	4	4
3	MCAP1103	Numerical and Statistical Techniques	3	1	-	4	4
4	MCAP1104	Discrete Mathematics	3	-	-	3	3
5	MCAP1105	Management Information System	3	-	-	3	3
6	HMTS1102	Business English	3	-	-	3	3
Total of Theory						**20**	**20**
B. PRACTICAL							
7	MCAP1111	Digital Logic Lab	-	-	4	4	3
8	MCAP1112	Programming Lab	-	-	4	4	3
9	HMTS1112	Language Practice Lab	-	-	4	4	3
Total of Practical						**12**	**9**
Total of Semester						**32**	29

1st Year 2nd Semester:

A. THEORY							
SERIAL NO	CODE	THEORY	CONTACTS (PERIODS/WEEK)				CREDITS
			L	T	P	TOTAL	
1	MCAP1201	Object Oriented Programming with Java	3	1	-	4	4
2	MCAP1202	Data Structures	3	1	-	4	4
3	MCAP1203	Database Management Systems I	3	1	-	4	4
4	MCAP1204	Optimization Techniques	3	-	-	3	3
5	MCAP1205	Computer Organization and Architecture	3	-	-	3	3
6	HMTS1201	Principles of Management and Accounting	3	-	-	3	3
Total of Theory						**21**	**21**
B. PRACTICAL							
7	MCAP1211	Object Oriented Programming Lab	-	-	4	4	3
8	MCAP1212	Data Structure Lab	-	-	4	4	3
9	MCAP1213	DBMSI Lab	-	-	4	4	3
Total of Practical						**12**	**9**
Total of Semester						**33**	**30**

2nd Year 1st Semester:

A. THEORY							
SERIAL NO	CODE	THEORY	CONTACTS (PERIODS/WEEK)				CREDITS
			L	T	P	TOTAL	
1	MCAP2101	Design and Analysis of Algorithm	3	1	-	4	4
2	MCAP2102	Data Communication & Computer Networks	3	1	-	4	4
3	MCAP2103	Data Base Management System II	3	1	-	4	4
4	MCAP2104	Operating Systems	3	1	-	4	4
5	CHEM2101	Enviroment and Ecology	3	-	-	3	3
Total of Theory						**19**	**19**
B. PRACTICAL							
6	MCAP2111	Algorithm Lab	-	-	4	4	3
7	MCAP2112	UNIX and Network Programming Lab	-	-	4	4	3
8	MCAP2113	DBMS II Lab	-	-	4	4	3
Total of Practical						**12**	**9**
Total of Semester						**31**	**28**

2nd Year 2nd Semester:

SERIAL NO	CODE	THEORY	CONTACTS (PERIODS/WEEK)				CREDITS
			L	T	P	TOTAL	
A. THEORY							
1	MCAP2201	Software Engineering	3	1	-	4	4
2	MCAP2202	Web Technology	3	1		4	4
3	MCAP2203	Computer Graphics	3	1	-	4	4
4	MCAP2204	Intelligent Systems	3	1	-	4	4
5	HMTS2201	Human Values and Professional Ethics	2	-	-	2	3
Total of Theory						**18**	**19**
B. PRACTICAL							
6	MCAP2211	Software Engineering Lab	-	-	4	4	3
7	MCAP2212	Web Technology Lab	-	-	4	4	3
8	MCAP2213	Graphics Lab	-	-	4	4	3
Total of Practical						**12**	**9**
C. SESSIONAL							
9	HMTS2221	Personality Development and Group Discussion	1	-	-	1	2
Total of Sessional						**1**	**2**
Total of Semester						**31**	**30**

3rd Year 1st Semester:

A. THEORY							
SERIAL NO	CODE	THEORY	CONTACTS (PERIODS/WEEK)				CREDITS
			L	T	P	TOTAL	
1	MCAP3150 to 3152	Elective I	3	1	-	4	4
2	MCAP3160 to 3162	Elective II	3	1	-	4	4
3	MCAP3170 to 3172	Elective III	3	1	-	4	4
4	MCAP3180 to 3183	Elective IV	3	1	-	4	4
Total of Theory						**16**	**16**
B. PRACTICAL							
5	MCAP3155 to 3157	Elective I Lab	-	-	4	4	3
6	MCAP3195	Minor Project and Seminar	-	-	12	12	10
Total of Practical						**16**	**13**
Total of Semester						32	29

Electives for Semester 3rd Year 1st Semester:

ELECTIVE NO	COURSE CODE	TOPIC
Elective I	MCAP3150	System Administration using Linux
	MCAP3151	Advanced Java
	MCAP3152	Image Processing
Elective II	MCAP3160	Cryptography and Network Security
	MCAP3161	Theory of Computing
	MCAP3162	Big Data Analysis
Elective III	MCAP3170	Mobile Computing
	MCAP3171	Soft Computing
	MCAP3172	Data Mining and Data Warehousing
Elective IV	MCAP3180	Next Generation Networking
	MCAP3181	Parallel and Distributed Computing
	MCAP3182	Compiler Design
	MCAP3183	Ecommerce and ERP
Elective I Lab	MCAP3155	System Administration Lab
	MCAP3156	Advanced Java Lab
	MCAP3157	Image Processing Lab

3rd Year 2nd Semester:

PRACTICAL							
1	MCAP3295	Major Project and Seminar	-	-	-	-	20
2	MCAP3296	Grand Viva	-	-	-	-	10
Total of Practical			-			-	**30**
Total of Semester						-	30

Summary

Semester No.	Contact hr/wk	Credit
1	32	29
2	33	30
3	31	28
4	31	30
5	32	29
6	-	30
	Total	176

Date : 20.04.2016

To
Prof. Atal Chaudhuri,
Professor,
Department of Computer Science & Engineering,
Jadavpur University,
Kolkata -32

Sub: *Invitation for attending the first BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

You are aware that Heritage Institute of Technology has been granted autonomous status by the UGC. In accordance with Statutes and as per UGC guidelines, a Departmental Board of Studies (BOS) for Computer Application Centre has been constituted.

We have the privilege to have you as an external expert in our BOS. Please note that the first BOS Meeting of Computer Application Centre is scheduled on 20.05. 2016 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

Date : 20.04.2016

To
Prof. Sipra Das Bit
Professor and Head,
Computer Science & Technology,
IIEST, Shibpur

Sub: *Invitation for attending the first BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Madam,

You are aware that Heritage Institute of Technology has been granted autonomous status by the UGC. In accordance with Statutes and as per UGC guidelines, a Departmental Board of Studies (BOS) for Computer Application Centre has been constituted.

We have the privilege to have you as an external expert in our BOS. Please note that the first BOS Meeting of Computer Application Centre is scheduled on 20.05. 2016 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

Date : 20.04.2016

To
Mr. Ranoj Saha,
Associate Director,
Capgemini India Pvt. Ltd.,
Kolkata

Sub: *Invitation for attending the first BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

You are aware that Heritage Institute of Technology has been granted autonomous status by the UGC. In accordance with Statutes and as per UGC guidelines, a Departmental Board of Studies (BOS) for Computer Application Centre has been constituted.

We have the privilege to have you as an external expert in our BOS. Please note that the first BOS Meeting of Computer Application Centre is scheduled on 20.05. 2016 from 2 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

The Heritage

siuli roy <siuli.roy@heritageit.edu>

Syllabus and BOS Meeting of CAC

Thu, Apr 21, 2016 at 12:34 PM

siuli roy <siuli.roy@heritageit.edu>
To: anirban kundu <anirban.kundu@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, indranil dasgupta <indranil.dasgupta@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, samapti banerjee <samapti.banerjee@heritageit.edu>, sandipan ganguly <sandipan.ganguly@heritageit.edu>, siuli roy <siuli.roy@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, subhajit rakshit <subhajit.rakshit@heritageit.edu>, subhra pramanik <subhra.pramanik@heritageit.edu>, sudeshna ghosh <sudeshna.ghosh@heritageit.edu>, Sudipta Chakraborty1 <sudipta.chakraborty1@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>, arpita roy <arpita.roy@heritageit.edu>

Dear All,

Please note that the DAC meeting for drafting new MCA syllabus will be held on 11/5/2016 at 10:30 AM.

Also note that, the first BOS meeting of MCA department will be held on 20/5/2016 at 2:00 PM.

Best regards,

Siuli Roy

RESOLUTIONS TAKEN AT THE MEETING OF
BOARD OF STUDIES,
COMPUTER APPLICATION CENTRE,
HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

DATE : 05.12.2016
VENUE : MCA Building
TIME : 02:00 pm

Following are the minutes of the BOS meeting:

The course content of MCA 3rd semester under autonomy was prepared by members of Faculty of Computer Application Centre and the Department of Chemistry prior to the meeting. The same were reviewed in the DAC meeting held on 02.12.2016. In the BOS meeting, the course content were modified as per the suggestions of the external experts. The modifications suggested by the experts are summarized below:

1. MCAP2101

i. Correctness of algorithm is added to the introduction part.

2. MCAP2102

i. Miscellaneous topic of Module IV is shifted to Module I
ii. Analog signal and digital signal were deleted from Physical layer of Module I
iii. Sliding window protocol and slotted ALOHA were added in Data Link layer of Module II
iv. Introduction to network security was added to the Application layer of Module IV
v. The other topics of Module IV except Misc topic were shifted to Module III
vi. Transport layer was shifted to Module IV.

3. MCAP2112

i. List all the topic of the Network programming precisely.
ii. In Test bed development and simulators, no specific simulation tool to be mentioned.

4. MCAP2103

i. Higher Normal Forms were shifted to Module I.
ii. Distributed Database by Ceri, Pelagatti -to be added in the reference book section.

Read and Confirmed.

5.12.16 05.12.16 5/12/16

Prof. Atal Chaudhuri	**Prof. Sipra Das Bit**	**Prof. Siuli Roy**
Professor,	Professor,	Director,
Computer Science & Engg.,	Computer Science & Tech.,	Computer Application Centre,
Jadavpur University	IIEST, Shibpur	HIT, Kolkata

LIST OF MEMBERS PRESENT AT THE BOS MEETING HELD ON 05.12.2016

SERIAL	NAME	SIGNATURE
1.	Dr. Siuli Roy, *Associate Professor & Director, CAC*	Siuli Roy 5/12/16
2.	Prof. Atal Chowdhuri, *Professor,* *Department of CSE, JU*	05.12.16
3.	Prof. Sipra Das Bit *Professor,* *Department of CST, IIEST, Shibpur*	Sd 05.12.16
4.	Mr. Ranoj Saha, *Associate Director,* *Capgemini India Pvt. Ltd., Kolkata*	Absent
5.		
6.	Mr. Souvik Basu, *Assistant Professor and DC, CAC*	05/12/16
7.	Ms. Sudeshna Ghosh *Assistant Professor, CAC*	Sghosh 5/12/2016
8.	Mr. Debabrata Kar, *Assistant Professor, CAC*	5/12/16
9.	Mr. Anirban Kundu *Assistant Professor, CAC*	Anirban Kundu 05/12/2016
10.	Ms. Subhra Pramanik *Assistant Professor, CAC*	Subhra Pramanik 5/12/16
11.	Mr. Sandipan Ganguly *Assistant Professor, CAC*	Absent (Invigilation)
12.	Mr. Jyotirmoy Ghosh *Assistant Professor, CAC*	05/12/16
13.	Mr. Palash Ghosh *Assistant Professor, CAC*	05/12/16
14.	Mr. Subhajit Rakshit *Assistant Professor, CAC*	05/12/16
15.	Mr. Sumon Ghosh *Assistant Professor, CAC*	05/12/2016
16.	Mr. Anandalok Adhya *Assistant Professor, CHE*	Absent

To
Prof. Atal Chaudhuri,
Professor,
Department of Computer Science & Engineering,
Jadavpur University,
Kolkata -32

Date : 10.11.2016

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 05.12. 2016 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

Date : 10.11.2016

To
Mr. Ranoj Saha,
Associate Director,
Capgemini India Pvt. Ltd.,
Kolkata

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Sir,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 05.12. 2016 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

Date : 10.11.2016

To
Prof. Sipra Das Bit
Professor and Head,
Computer Science & Technology,
IIEST, Shibpur

Sub: *Invitation for attending BOS Meeting of Computer Application Centre, Heritage Institute of Technology*

Dear Madam,

We have the privilege to have you as an external expert in the Departmental Board of Studies (BOS) for Computer Application Centre, Heritage Institute of Technology. Please note that the next BOS Meeting of Computer Application Centre is scheduled on 05.12. 2016 from 3 pm at MCA building of our Institute.

I request you to kindly make it convenient to attend the meeting.

Best Regards,

Dr. Siuli Roy
Director,
Computer Application Centre,
Heritage Institute of Technology,
Kolkata

The Heritage

siuli roy <siuli.roy@heritageit.edu>

DAC Meeting for Syllabus Finalization and 2nd BOS Meeting

siuli roy <siuli.roy@heritageit.edu> Tue, Nov 22, 2016 at 1:13 PM
To: anirban kundu <anirban.kundu@heritageit.edu>, arpita roy <arpita.roy@heritageit.edu>, debabrata kar <debabrata.kar@heritageit.edu>, indranil dasgupta <indranil.dasgupta@heritageit.edu>, jyotirmoy ghosh <jyotirmoy.ghosh@heritageit.edu>, palash ghosh <palash.ghosh@heritageit.edu>, sandipan ganguly <sandipan.ganguly@heritageit.edu>, siuli roy <siuli.roy@heritageit.edu>, souvik basu <souvik.basu@heritageit.edu>, subhajit rakshit <subhajit.rakshit@heritageit.edu>, subhra pramanik <subhra.pramanik@heritageit.edu>, sudeshna ghosh <sudeshna.ghosh@heritageit.edu>, Sudipta Chakraborty1 <sudipta.chakraborty1@heritageit.edu>, sumon ghosh <sumon.ghosh@heritageit.edu>

Dear All,

Please note that the DAC meeting for finalizing MCA syllabus for 3rd semester (under Autonomy) will be held on 02/12/2016 at 02:00 PM.

Also note that, the BOS meeting of CAC will be held on 05/12/2016 at 03:00 PM.

Best regards,

Siuli Roy

(1) MCAP2101

Correctness of algo - introduction (added)

(2) MCAP2102

Mod II Misc. topic shifted to introductory part ie. module I.

i)

ii) Physical layer - delete analog signal & digital signal. mod I.

iii) Mod II - Data link layer - Sliding window protocol added, Slotted ALOHA added.

iv) Mod IV. Appln layer - Introduction to nw security (only intro is reqd).

v) Misc topics → deleted, rest elements are shifted ~~added~~ to mod III.

vi) Transport layer shifted to mod IV.

LAB.

i) Network programming on the following → mention the topic } change of sentence construct

ii) Testbed Development and Simulations

RESOLUTIONS TAKEN AT THE MEETING OF

BOARD OF STUDIES,
COMPUTER APPLICATION CENTRE,
HERITAGE INSTITUTE OF TECHNOLOGY, KOLKATA

DATE : 20.05.2016
VENUE : MCA Block, Ground Floor
TIME : 02:00 pm

The course structure and course content of MCA 1st year under autonomy was prepared by members of Faculty of Computer Application Centre and the Department of Humanities prior to the meeting. The same were reviewed in the DAC meeting held on 16.05.2016. In the BOS meeting, the course structure and course content were modified as per the suggestions of the external experts. The modifications suggested by the experts are summarized below:

1. Prof. Atal Chaudhuri changed the name of the MCA 1st semester paper MCAP 1101 from Digital Logic and Computer Organization to Digital Logic and Design.
2. Prof. Sipra DasBit suggested that the MCA 1st semester paper MCAP 1102 be renamed as Introduction to Programming which was earlier named as Introduction to Computing.
3. Prof. Atal Chaudhuri and Prof. Sipra DasBit introduced the paper Information System Analysis and Design (MCAP 1105) in MCA 1st semester course.
4. Prof. Atal Chaudhuri introduced the paper Computer Organization and Architecture (MCAP 1205) in MCA 2nd semester course.
5. Ms. Saptaparna Roy suggested the paper code of the following papers:
    - MCA 1st semester paper Business English to HMTS 1102
    - MCA 1st semester paper Language Practice Lab - HMTS 1112
    - MCA 2nd semester paper Principles of Management and Accounting - HMTS 1201
    - MCA 4th semester paper Human Values and Professional Ethics - HMTS 2201
    - MCA 5th semester paper Personality Development and Group Discussion - HMTS 3121

6. Prof. Atal Chaudhuri renamed the MCA 5th semester elective paper MCAP 3160 from Network Security and Cryptography to Cryptography and Network Security.
7. Prof. Sipra DasBit and Prof. Atal Chaudhuri introduced Grand Viva (MCAP 3296) in MCA 5th semester.
8. Prof. Atal Chaudhuri and Prof. Sipra DasBit reviewed the course content of all papers of MCA 1st and 2nd semesters and suggested modifications were incorporated.

Read and Confirmed.

Prof. Atal Chaudhuri Professor, Department of Computer Science & Engineering, Jadavpur University	Prof. Sipra Das Bit Professor, Computer Science & Technology, IIEST, Shibpur	Prof. Siuli Roy Director, Computer Application Centre, HIT, Kolkata
External Expert, BOS - CAC	*External Expert, BOS - CAC*	*Chairman, BOS - CAC*

Dated: 05.12.2016

HERITAGE INSTITUTE OF TECNOLOGY
KOLKATA
COMPUTER APPLICATION CENTRE
LIST OF MEMBERS PRESENT AT BOS MEETING on 20.05.2016

SERIAL	NAME	Signeture
1.	Prof. (Dr.) Atal Chaudhuri, *Professor, Department of CSE, Jadavpur University*	20.05.16
2.	Prof. (Dr.) Sipra DasBit, *Professor, Department of CST, IIEST, Shibpur*	20.05.16
3.	Prof. (Dr.) Siuli Roy, *Associate Professor & Director*	20/5/16
4.	Prof. Souvik Basu, *Assistant Professor and Coordinator*	20.05.2016
5.	Prof. Sudeshna Ghosh *Assistant Professor*	20/5/2016
6.	Prof. Debabrata Kar, *Assistant Professor*	
7.	Prof. Anirban Kundu *Assistant Professor*	20/05/2016
8.	Prof. Subhra Pramanik *Assistant Professor*	20/5/16
9.	Prof. Sandipan Ganguly *Assistant Professor*	20.05.2016
10.	Prof. Jyotirmoy Ghosh *Assistant Professor*	20/05/16
11.	Prof. Palash Ghosh *Assistant Professor*	20/5/16
12.	Prof. Subhajit Rakshit *Assistant Professor*	20/05/16
13.	Prof. Samapti Banerjee *Assistant Professor*	ABSENT
14.	Prof. Sumon Ghosh *Assistant Professor*	
15.	Prof. Anandalok Andhya Assistant Professor	Anandalok Andhya DC, Chemistry & Environment HITK. 20.05.2016
16.	Prof. Saptaparna Roy Assistant Professor	Saptaparna Roy 20/05/16 SC, Dept. of Humanities