

2016

Amity University Gurgaon

Amity School of Engineering and Technology

MINUTES OF BOARD OF STUDIES MEETING

1. The Board of Studies Meeting was conducted in Room Number C-214 C-Block (Second Floor) on 2nd June 2016.
2. The following were present:

(a) As Member of BOS - ASET :

- (i) Prof. Ashok Kumar Raghav, Director - IRD, AUH
- (ii) Dr. R.K. Malik, HOD, Dept of Civil Engineering
- (iii) Dr. Priti Singh, HOD, ECE & EEE
- (iv) Dr. Shalini Bhaskar Bajaj HOD, CSE, IT & AIIT
- (v) Dr. Janak Patel, Professor ECE
- (vi) Dr. Brijesh, Associate Professor, ECE
- (vii) Dr. Shiv Sharma, Assistant Professor, ME

(b) As External Experts

- (i) Dr. Swati Agarwal, Asst. Professor, NSIT, Delhi
- (ii) Mr. Anuj Sharma, Tata Consultancy Services (he was not present but suggested his opinions through email)

(c) As Special Invitees

- (i) Dr. Bhavana Adhikari, Deputy Dean - Academics
- (ii) Dr. Vivek Jaglan, Assistant Professor - CSE, ASET
- (iii) Mr. Vishwanath, Assistant Professor, AE, ASET

3. Agenda:

At the outset Dr. Shalini Bhaskar Bajaj welcomed all the members present and gave a brief on each of the following Agenda issues to be taken up:-

- (a) Review the Programme Structure and Curriculum of ongoing M.Sc (NT&M) Programme
- (b) Review the Programme Structure of ongoing B Tech (AE) Programme.

4. Details of deliberations and discussions held and decisions taken are covered in the subsequent paragraphs.

5. Review of Existing Programme Structure and Curriculum of MSc (NT & M) Programme

- (a) Existing Programme Structure of M Sc (NT & M) was discussed at length and changes suggested are covered in the Table below.

Semester	Code	Existing	Proposed	Remarks
I	Theory Courses			
	NTM4101	Computer Programming in C Language	Computer Programming in C Language	<ul style="list-style-type: none"> • Content Revised • Modules merged and topic on Strings introduced
	NTM 4102	Network Devices & Hardware	Data Communication & Computer networks	<ul style="list-style-type: none"> • Network Devices & Hardware : Important topics merged with Network Fundamentals • New Course on Data Communications and Networks introduced • Course on Data Communications and Networks includes the introduction and functioning of each layer. Reference models discussed are: OSI/TCP
	NTM 4103	Operating System	Operating System	<ul style="list-style-type: none"> • Content Revised • Advance topics of operating system are included.
	NTM 4104	Distributed System	Wireless Networking Technologies	<ul style="list-style-type: none"> • Distributed Systems: Shifted to 2nd Semester from 1st Semester. No change in course content. • Wireless Networking: Shifted from 2nd Semester to 1st Semester
	NTM4105	Network Fundamentals	Network Fundamentals	<ul style="list-style-type: none"> • Network Devices & Hardware : Important topics merged with Network Fundamentals • Content revised • Four modules (2-5) cover the contents of "Network Fundamentals" and two modules (1 and 5) covers the contents of "Network Devices & Hardware". • All the essential contents required for the fundamentals of networking have been included in the course.
	NTM4106	Mobile Computing	Mobile Computing	No change in content
Lab Courses				
NTM 4108	C-Programming Lab	C-Programming Lab	Content revised	
NTM 4107	Network Fundamentals Lab	Network Fundamentals Lab	<ul style="list-style-type: none"> • Content Revised • Total nine experiments to gain practical knowledge and understanding of fundamental concepts of Networking including software (wireshark), network hardware and cable types. 	

- 'Network Devices & Hardware' and 'Network Fundamentals' are merged together under network Fundamentals with contents revised.
- In place of Distributed System, Wireless Networking is shifted from 2nd Sem to 1st Sem as it is a part of understanding of basic networking.
- Data Communication & networks, a new subject introduced (4 credits) for basic concepts of OSI model TCP/IP layers.

II

Theory Courses

NTM4201	Lan Switching	Lan Switching	<ul style="list-style-type: none"> • Content Revised • Concepts like types of switching techniques, switch-port security, types of VLANs, Trunking modes, VTP modes, (WEP,WPA,WPA2)- WLAN security options, have been introduced.
NTM4202	Routing Protocols & Concepts	Routing Protocols & Concepts	<ul style="list-style-type: none"> • Content Revised • All the essential contents of Routing have been included and combined in five modules • Exterior Gateway Routing Protocols- BGP & re-distribution concepts introduced.
NTM4203	High Performance Networks	Wireless Ad Hoc Networks	<ul style="list-style-type: none"> • High Performance Networks: Shifted to 3rd Semester from 2nd Semester • Wireless Ad Hoc Networks: New Subject introduced.
NTM 4204	Wireless Networking	Distributed Systems	<ul style="list-style-type: none"> • Wireless Networking: Shifted from 2nd Semester to 1st Semester • Distributed Systems: Shifted to 2nd Semester from 1st Semester. No change in course content.
NTM 4206	System Administration I	Seminar	<ul style="list-style-type: none"> • System Administration-I: Discontinued • Seminar Introduced
NTM 4205	Networking Management	Network Management	<ul style="list-style-type: none"> • No change in content • Modules merged

Lab Courses

NTM 4207	System Administration Lab I	Wireless Ad Hoc Networks Lab (NS-LAB)	<ul style="list-style-type: none"> • Wireless Ad Hoc Networks Lab (NS- LAB): New Lab Introduced. • System Administration-I Lab discontinued
NTM4208	Routing Protocols & Concepts Lab	Routing Protocols & Concepts Lab	<ul style="list-style-type: none"> • Content revised • The repetition of experiments has been removed. • Experiments of RIPv2, Exterior gateway routing Protocol BGP has been included. • Advanced Routing concepts- Redistribution, IP multicast routing introduced.

NTM4209	LAN Switching Lab	LAN Switching Lab	<ul style="list-style-type: none"> • Content revised • In the mentioned experiments, configuration and troubleshooting parts of a concept are combined as single experiment and some additional experiments have been introduced.
---------	-------------------	-------------------	---

- **Wireless Ad Hoc Networks (Theory + Lab)** is introduced. Students can do projects after understanding of the concept of Wireless ad hoc network and tools.
- **System Administration - I (Theory + Lab):** discontinued as the latest technologies in system administration is based on linux.

III	Theory Courses			
	NTM4301	System Administration II (Linux/Unix)	System Administration (Linux)	<ul style="list-style-type: none"> • System Administration II (Linux/Unix): Renamed as System Administration (in Linux) • Contents Revised
	NTM 4302	Network Security	Network Security & Cryptography: Renamed & Content Revised	<ul style="list-style-type: none"> • Network Security: Renamed as Network Security & Cryptography • Content Revised. • Introduced content on Cryptography.
	NTM4303	Emerging Technologies	High Performance Networks	<ul style="list-style-type: none"> • High Performance Networks: Shifted from 2nd Semester to 3rd Semester • In High Performance Networks, module on High Speed LAN is introduced as it is prerequisite to understand other high speed technologies • In introduction some basic topics like OSI/ TCP/SCTP/ UDP are added • Emerging Technologies: Discontinued
	NTM 4304	Accessing the WAN	Accessing the WAN	<ul style="list-style-type: none"> • Content Revised • Advanced concepts like IPSec and GRE tunnels introduced.
			IT Enabled Services	<ul style="list-style-type: none"> • IT Enabled Services: Shifted from 4th Semester to 3rd Semester, content revised
	Lab Courses			
	NTM 4305	System Administration Lab II	System Administration Lab (Linux)	<ul style="list-style-type: none"> • Renamed System Administration Lab II to System Administration Lab (in Linux) • No Change in content.
	NTM4306	Accessing the WAN Lab	Accessing the WAN Lab	<ul style="list-style-type: none"> • Content revised • Additional experiments have been included.
	<ul style="list-style-type: none"> • Network Security: Renamed as "Network Security & Cryptography" and its content is revised. It briefs about the concepts of security and cryptographic techniques. • Emerging Technologies is discontinued as the contents of emerging technology is covered with the other subjects like IoT, Wireless Networking etc. 			
IV	Theory Courses			

NTM4401	Network Planning & Designing	Internet of Things (IoT)	Internet of Things (IoT): New subject introduced Network Planning and Designing: Discontinued
NTM 4402	IT Enabled Services	Cloud Computing	<ul style="list-style-type: none"> • Cloud Computing: New subject introduced • IT Enabled Services: Shifted from 4th Semester to 2nd Semester

- Network Planning & Designing is replaced with IoT as IoT is a new technology in networking and business. Many projects can be undertaken by the students of final year.
- IT Enabled Services is shifted to 3rd semester
- Cloud computing is introduced as new subject in 4th semester. Cloud computing is a new platform in research so final year students can take projects after having knowledge of cloud computing basics.

(b) Existing and revised Programme Structures of M.Sc. (NT & M) are attached as attached as Appendix A & E respectively.

(c) Changes proposed in First Semester

- (i) Content of all courses in first semester is revised except course on Mobile Computing.
- (ii) Dr. Shalini Bhaskar Bajaj proposed that the subject "Network devices and Hardware" should be merged with "Network Fundamentals" as both the subjects have some common topics and are quite interrelated. She proposed introduction of "Data Communication & Computer networks" subject as the students that join M.Sc. (NT&M) are from different backgrounds and must study this subject to understand basics of Networking. It was further proposed to swap Distributed Systems (earlier in 1st semester) with Wireless Networking (earlier in 2nd Semester).

(d) Changes proposed in Second Semester

- (i) Dr. Swati Aggarwal (External Expert), Dr. Priti, Dr. Ashok Raghav and Dr. R. K. Malik proposed to introduce "Seminar" in 2nd semester to make students learn and understand new technologies which later on they can use in their project work.
- (ii) Dr. Shalini Bhaskar Bajaj proposed to discontinue subject on "System Administration - I" as it has obsolete content, instead a new course "Wireless Ad Hoc Networks" be introduced. She also suggested to shift subject on "High Performance Networks" to 3rd semester.

(e) Changes proposed in Third Semester

- (i) Dr. Shalini Bhaskar Bajaj suggested to rename subject on "System Administration-II" to "System Administration" as "System Administration - I" is discontinued. It was further suggested to rename "Network Security" to "Network Security & Cryptography" as content on cryptography is introduced in the existing course content. It was further suggested to shift course on "IT Enabled services" from 4th semester to 3rd semester.
- (ii) Dr. Bhavana Adhikari suggested to keep nine credits for Summer Internship.

(f) Changes proposed in Fourth Semester

- (i) Dr. Shalini Bhaskar Bajaj proposed to introduce two new courses "Internet of Things" and "Cloud Computing" as these subjects have relevance in both research and industry.

(ii) Dr. Priti and Dr. Swati Aggarwal (External Expert) proposed to discontinue subject on “Network Planning and Designing” as the content has been covered already in other subjects on Networking.

(iii) Dr. Bhavana Adhikari, Dr. Ashok Raghav and Dr. R. K. Malik proposed to keep “Major Project” for 25 credit only.

6. Review the Programme Structure of ongoing B Tech (AE) Programme

(a) Existing Programme Structure of BTech (AE) was discussed at length and changes suggested are covered in the Table below:

Sem.	Course Code	Existing	Proposed	Justifications/Remarks	Existing Credits	New Credits
1 st	No Changes Required				29	29
2 nd	No Changes Required				25	25
3 rd	No Changes Required				31	31
4 th	ASE2451	Aircraft Structures	• Course Code should be ASE2411	• It is a core subject and is not being offered as an open elective. ASE2X51 course code series is being used for OE subjects as per current coding scheme of AUH.	31	31
	ASE2411	Elements of Space Systems	• Should be renamed as Elements of Space Engineering. • Course code should be ASE2451	• The same subject is being offered as an OE subject in the 4 th semester under the name of Elements of Space Engineering		
5 th	ASE2508	Aircraft Stability & Control	• Should be shifted to 6 th semester with course code as ASE2651	• The same subject is being offered as an OE subject in the 6 th semester. • For proper distribution of credits over the semesters.	32	27
	ASE2509	Airplane Performance	• Should be shifted to 6 th semester with course code as ASE2601	• For proper distribution of credits over the semesters.		
6 th	ASE2601	Aircraft Design	• Should be shifted to 7 th semester with course code as ASE2703	• Aircraft Design should be taught after Aircraft Stability & Control and Airplane Performance subjects. • For proper distribution of credits over the semesters.	21	23
7 th	Changes required are mentioned above.				21	24
8 th	No changes required				20	20
Total Credits					210	210

(b) The existing and revised Programme Structure of B Tech (AE) are attached as Appendix C & D respectively.

(c) Changes proposed in Fourth Semester

(i) Mr. Vishwanath proposed to rename course on "Elements of Space Systems" to "Elements of Space Engineering" and change the code for the course on "Aircraft Structures"

(d) Changes proposed in Fifth Semester

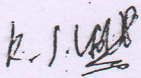
(i) Mr. Vishwanath proposed to shift course on "Aircraft Stability & Control" and "Airplane Performance" from 5th semester to 6th semester for proper distribution of credits. He further proposed to shift course on "Aircraft Design" to 7th Semester as "Aircraft Stability & Control" and "Airplane Performance" are prerequisites for this course.

Recommendations of BoS

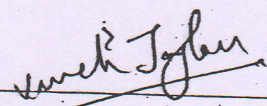
The BoS recommends the changes proposed in the M.Sc(NT&M) syllabus for the new batch starting from the academic session 2016-17 to the Academic Council for approval.

The BoS also recommends the changes proposed in B.Tech. (AE) program structure. Since the revised structure has no implications upto fourth semester and the changes have been proposed from fifth semester onwards the same may be implemented from fifth semester (academic session 2016-17) for the running batches.

The meeting ended with vote of thanks to all present.



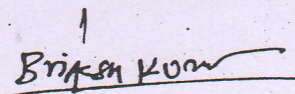
Mr. Viswanath



Dr. Vivek Jaglan



Dr. Shiv Sharma

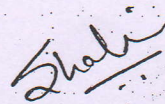


Dr. Brijesh

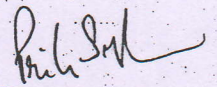
JBPATEL
18/07/2016

Dr. Janak Patel

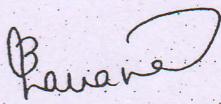
Dr. Swati Aggarwal



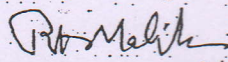
Dr. Shalini Bhaskar Bajaj



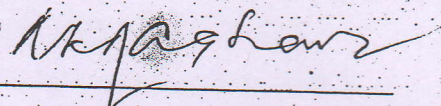
Dr. Priti Singh



Dr. Bhavana Adhikari



Prof. R.K. Malik



Prof. Ashok Kumar Raghav

Amity University Gurgaon

Amity School of Engineering and Technology

MINUTES OF BOARD OF STUDIES MEETING

1. The Board of Studies Meeting was conducted in Room Number C-214 C-Block (Second Floor) on August 24, 2016.

2. The following were present:

(a) As Member of BOS - ASET :

- (i) Maj. Gen. V. K. Narang (Retd.), Director ASET, AUH
- (ii) Prof. Ashok Kumar Raghav, Director - IRD, AUH
- (iii) Dr. R.K. Malik, HOD, Dept of Civil Engineering
- (iv) Dr. Priti Singh, HOD, ECE & EEE
- (v) Dr. Shalini Bhaskar Bajaj HOD, CSE, IT & AIIT
- (vi) Dr. Janak Patel, Professor ECE
- (vii) Dr. Brijesh, Associate Professor, ECE
- (viii) Dr. Shiv Sharma, Assistant Professor, ME

(c) As Special Invitees

- (i) Dr. Vivek Jaglan, Assistant Professor, CSE, ASET
- (ii) Dr. Sunil Sikka, Assistant Professor, CSE, ASET
- (iii) Dr. Vikas Thada, Assistant Professor, CSE, ASET

Agenda:

At the outset Dr. Shalini Bhaskar Bajaj welcomed all the members present and gave a brief on the following Agenda issues to be taken up:-

- (a) Introduction of "Data Warehousing and Data Mining" course for Ph.D. students.

4. Details of deliberations and discussions held and decisions taken are covered in the subsequent paragraphs.

5. Introducing "Data Warehousing and Data Mining" course for Ph.D. students


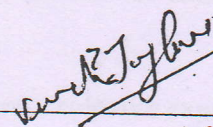
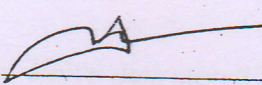
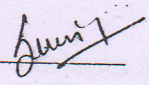
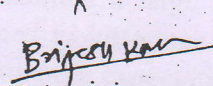
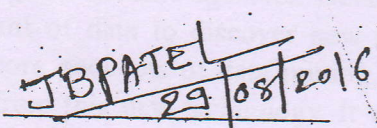
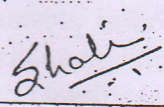
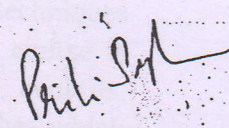
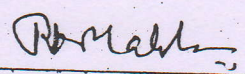
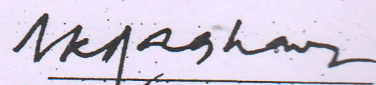
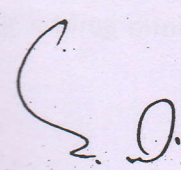
- (i) Dr. Shalini Bhaskar Bajaj proposed that the course on "Data Warehousing and Data Mining" be added to the list of existing courses being offered to Ph.D. students. This will help Ph.D. students interested in undertaking research in the field of data warehousing, data mining or related areas. The course will help students learn and understand new concepts in the field of data warehousing and data

mining which they can later use in their research. The course on data warehousing and data mining has relevance in both research and industry.

- (ii) The course has five modules based on data preprocessing, data warehousing, association rule mining, classification, clustering and outlier detection covering different aspects of data warehouse and data mining techniques.
- (iii) It was suggested to incorporate content based on data science and predictive analytics. After discussion, it was found that Amity School of Applied Sciences (ASAS) offers a course on "Statistics" for Ph.D. scholars interested in analytics and related areas. The course on "Statistics" has modules based on statistics, data science, predictive analytics. The modules offered in "Statistics" course are different from the modules offered in "Data Warehousing and Data Mining".

The BoS recommends the above mentioned course to be incorporated in the list of courses existing for the Ph.D. students to the Academic Council for approval.

The meeting ended with vote of thanks to all present.

 _____ Dr. Vikas Thada	 _____ Dr. Vivek Jaglan	 _____ Dr. Shiv Sharma	 _____ Dr. Sunil Sikka
 _____ Dr. Brijesh	 _____ Dr. Janak Patel	 _____ Dr. Shalini Bhaskar Bajaj	 _____ Dr. Priti Singh
 _____ Prof. R.K. Malik	 _____ Prof. Asok Kumar Raghav	 _____ Maj. Gen. V. K. Narang (Retd.)	

CSE	Data Warehousing And Data Mining	L	T	P	C
Version	Date of Approval:	3	0	0	3
Pre-requisites/Exposure					
Co-requisites					

Course Objectives

1. Provide a solid introduction to the topic of Data Warehouse and data mining.
2. Show the difference between database and data warehousing.
3. Learn the various association rule mining, classification and clustering techniques
4. To prepare student to take up research in the field of data mining or related areas.

Course Outcomes

On completion of this course, the students will be able to

1. Design and implement a high quality data warehouse or data mart to present information needed by management in a form that is usable for management clients.
2. Effectively administer a corporate data resource in such a way that it will truly meet management's needs.
3. Evaluate standards and new technologies to determine their potential impact on your information resource.
4. Take up research in the field of data mining or related areas.

Catalog Description

The recent years have generated explosive expansion of digital data stored in computer databases as well as increased pressure on companies to keep competitive advantage. This has put Data Mining (DM) as a key method for extracting meaningful information from the flood of digital data collected by businesses, government, and scientific agencies. Data mining is a class of analytical techniques that examine a large amount of data to discover new and valuable information. This course is designed to introduce the core concepts of data mining, its techniques, implementation, benefits, and outcome expectations from this new technology. It will also identify industry branches which most benefit from DM (such as retail, target marketing, fraud protection, health care and science, web and e-commerce). The course will focus on business solutions and results by presenting detailed case studies from the real world and finish with implementing leading mining tools on real (public domain) data.

Unit I Introduction and Data Preprocessing

Why Data Mining? What Is Data Mining? What Kinds of Data Can Be Mined? What Kinds of Patterns Can Be Mined? Which Technologies Are Used? Which Kinds of Applications Are Targeted? Major Issues in Data Mining, Data Objects and Attribute Types, Basic Statistical Descriptions of Data, Data Visualization, Measuring Data Similarity and Dissimilarity, Data Preprocessing: An Overview, Data Cleaning, Data Integration, Data Reduction, Data Transformation and Data Discretization

Unit II Data Warehouse and OLAP Technology

Data Warehouse: Basic Concepts, Data Warehouse Modeling: Data Cube and OLAP, Data Warehouse Design and Usage, Data Warehouse Implementation, Data Generalization by Attribute-Oriented Induction

Unit III Association Rule Mining

What is an association rule, Support and confidence measures, upward and downward closure property, frequent itemsets, closed frequent itemsets, maximal frequent itemsets, border set, Frequent Itemset Mining Methods: Apriori, FP-Growth, Pincer-Search, Which Patterns Are Interesting?—Pattern Evaluation Methods.

Unit IV Classification

Classification, prediction, issues regarding classification and prediction, comparing classification and prediction methods, classification by decision tree induction, Attribute selection measures: Information gain, Gain ratio, Gini Index, Decision Tree Induction, Bayes Classification Methods: Bayes' Theorem, Naïve Bayesian Classification, Rule-Based Classification

Unit V Clustering and Outlier Detection

Clustering, Cluster analysis, Types of data in cluster analysis: Interval scaled variables, Binary variables, categorical, ordinal, and ratio scaled variables, variables of mixed types, Major clustering methods: Partitioning methods, Hierarchical methods, Density based methods, Grid based methods, Model based methods, Clustering high dimensional data, Constraint based clustering, Outliers and Outlier Analysis, Outlier Detection Methods, Statistical Approaches: Parametric and non-parametric, Proximity-Based Approaches: distance-based, grid-based and density-based-outlier detection.

Text Books:

1. Jiawei Han, Micheline Kamber, "Data Mining Concepts & Techniques", Elsevier, 2011
2. A.K.Pujari, "Data Mining Techniques", Universities Press (India) Private Limited, 2010

References:

1. M. H. Dunham, "Data Mining: Introductory and Advanced Topics" Pearson Education, 2006
2. Sam Anahory, Dennis Murray, "Data Warehousing in the Real World : A Practical Guide for Building Decision Support Systems, Addison-Wesley Publications, 2000