

**Vivekanand Education Society's College of
Arts, Science & Commerce(Autonomous)**

**Data Science & Data Analytics
Minutes of the 1st BOS Meeting**

The first meeting of Ad-Hoc BOS for the Data Science & Data Analytics course was held on 18th December 2021 between 2.30 pm to 4 pm. The following members were present for the meeting -

1. Chairperson (HOD / Coordinator) : Mr. Kamlakar Bhopatkar
2. The entire faculty of each specialization:
 - i. Dr. Madhavi Vaidya
 - ii. Mr. Sujit Chavan
 - iii. Ms. Laxmi Tiwari
 - iv. Ms. Neha Narne
 - v. Ms. Rajashree Date

The agenda was planned with the following agenda -

1. Welcome and Introduction of all the BOS members.
2. To discuss and approve the Syllabus.
3. To discuss and approve the Scheme of Course Evaluation.
4. To discuss and approve suggested techniques for Continuous Internal Evaluation.
5. To discuss and approve Question Paper Pattern (For Theory & Practical).
6. To discuss and approve the list of Examiners and Moderators for the assessment of the End Semester Exam.
7. To discuss methodologies for innovative teaching and evaluation techniques.
8. Any other matter with the permission of the chair.

The proceedings of the meeting along with the resolutions adopted are as follows -

Agenda 1 - Welcome and Introduction of all the BOS members.

Mr. Kamlakar Bhopatkar welcomed all and gave a brief introduction about the new course.

Agenda 2 - To discuss and approve the Syllabus.

(i) To design the syllabus for the course of Data Science & Data Analytics, a lot of syllabi of various colleges were referred. Various colleges/private institutions had set the syllabus for different types of target audience - like PG, industry experts, short term courses for any type of students. Although some contents were common, some organizations have also included subjects of different domains like Marketing, Economics, Commerce etc.

Current syllabus has been made by studying all these syllabi and informal feedback from industry experts. The teachers designed the syllabus keeping in mind that it not only should cover specialized subjects of data science & data analytics but also subjects which would give basic knowledge of computer science or information technology as well as some subjects that are indirectly related to this specific domain. The members also decided to add non-technical topics like soft skills, research methodology, entrepreneurship and management for all-round development of the students. The members decided to adopt the IT syllabus pattern which has five subjects per semester for this course. In TY, one subject without practical was added to accommodate project component as it cannot have theory.

(ii) The yearwise titles of the proposed syllabus are as follows -

First Year (Semester I)

Title of the Course	Number of Lectures/ Practicals	(Theory) per week	(Practical) per week	Credits
Introduction to Operating System and Networking Concepts	60	4	-	3
Introduction to Programming using Python	60	4	-	3
Mathematics for Data Science	60	4	-	3
Descriptive Statistics	60	4	-	3
Web Technologies	60	4	-	3
Practical of Introduction to Operating System and Networking Concepts	45	-	3	1
Practical of Introduction to Programming using Python	45	-	3	1
Practical of Mathematics for Data Science	45	-	3	1
Practical of Descriptive Statistics	45	-	3	1
Practical of Web Technologies	45	-	3	1
Total				20

First Year (Semester II)

Title of the Course	Number of Lectures/ Practicals	(Theory) per week	(Practical) per week	Credits
DBMS & NoSQL	60	4	-	3
Advanced Python	60	4	-	3
Research Methodology	60	4	-	3
Probability and Inferential Statistics	60	4	-	3
Soft Skill	60	4	-	3
Practical of DBMS & NoSQL	45	-	3	1
Practical of Advanced Python	45	-	3	1
Practical of Research Methodology	45	-	3	1
Practical of Probability and Inferential Statistics	45	-	3	1
Practical of Soft Skill	45	-	3	1
Total				20

Second Year (Semester III)

Title of the Course	Number of Lectures/ Practicals	(Theory) per week	(Practical) per week	Credits
Algorithms and Data Structures	60	4	-	3
Introduction to Data Science	60	4	-	3
Advanced Statistical Methods	60	4	-	3
Data Warehousing and Data Mining	60	4	-	3
IoT	60	4	-	3
Practical of Algorithms and Data Structures	45	-	3	1
Practical of Introduction to Data Science	45	-	3	1
Practical of Advanced Statistical Methods	45	-	3	1

Practical of Data Warehousing and Data Mining	45	-	3	1
Practical of IoT	45	-	3	1
Total				20

Second Year (Semester IV)

Title of the Course	Number of Lectures/ Practicals	(Theory) per week	(Practical) per week	Credits
Object Oriented Programming using Java	60	4	-	3
AI & Machine Learning	60	4	-	3
Software Engineering	60	4	-	3
Cloud Computing	60	4	-	3
Mobile Programming	60	4	-	3
Practical of Object Oriented Programming using Java	45	-	3	1
Practical of AI & Machine Learning	45	-	3	1
Practical of Software Engineering	45	-	3	1
Practical of Cloud Computing	45	-	3	1
Practical of Mobile Programming	45	-	3	1
Total				20

Third Year (Semester V)

Title of the Course	Number of Lectures/ Practicals	(Theory) per week	(Practical) per week	Credits
Data Analytics & Visualization	60	4	-	3
Cyber Security	60	4	-	3
Natural Language Processing	60	4	-	3
Big Data & BigData Technologie	60	4	-	3
Principles of Management and Entrepreneurship	60	4	-	3

Practical of Data Analytics & Visualization	45	-	3	1
Practical of Cyber Security	45	-	3	1
Practical of Natural Language Processing	45	-	3	1
Practical of Big Data & BigData Technologie	45	-	3	1
Project Practical	45	-	3	1
Total				20

Third Year (Semester VI)

Title of the Course	Number of Lectures/ Practicals	(Theory) per week	(Practical) per week	Credits
Deep Learning and Neural Networks	60	4	-	3
Business Intelligence and Web Analytics	60	4	-	3
Bioinformatics	60	4	-	3
Blockchain	60	4	-	3
Green Computing	60	4	-	3
Practical of Deep Learning and Neural Networks	45	-	3	1
Practical of Digital Marketing and Web Intelligence	45	-	3	1
Practical of Bioinformatics	45	-	3	1
Practical of Blockchain	45	-	3	1
Project Practical	45	-	3	1
Total				20

Each member of the ad-hoc BOS formulated a detailed syllabus for each of the topics. Although the syllabus was made for all the three years, the members decided that the syllabi of SY and TY would be updated based on the industry trends and inputs from more experts who would be part of BOS.

While deciding the eligibility for this course, the members suggested following criteria -

- (i) Min 50% Overall
- (ii) Min 50% in Maths
- (iii) Merit list on Maths marks

Since maths is done by Arts/Science/Commerce - all types of students and considering the applications of data science-data analytics in various kinds of fields, the members decided to keep the course open for all types of 12th passout students who have studied maths.

Agenda 3 - To discuss and approve the Scheme of Course Evaluation

The members decided the following scheme of evaluation -

- (i) 75 Marks External Theory Exam
- (ii) 25 Marks Internal Theory Marks
- (iii) 50 Marks Practical Exam

Agenda 4 - To discuss and approve suggested techniques for Continuous Internal Evaluation

The members decided the following scheme of evaluation for continuous internal evaluation -

(i) Mid-Term Class Test– 15 Marks

- It should be conducted using any learning management system such as Moodle (Modular object-oriented dynamic learning environment)
- The test should have 15 MCQ's which should be solved in a time duration of 30 minutes.

(ii) Assignment / Presentations – 10 Marks(Minimum 5 hours of work)

- Assignment - Any subject-related work in soft copy format comprising of case study, solutions to multiple challenging problems beyond journal, study and review of published research paper from a reputed journal
- Presentation - Any subject-related work(can be done in a group) comprising of mini-project , explaining topics beyond syllabus, presenting any subject-related topic into innovative way(like skit or video)
- Proof of the assignment/presentation should be maintained.

Agenda 5 - To discuss and approve Question Paper Pattern (For Theory & Practical)

The members decided the following scheme for question paper pattern -

I. External Examination for Theory Courses – 75 Marks

Duration: 2.5 Hours

Theory question paper pattern:

All questions shall be compulsory with internal choice within the questions. Each Question may be subdivided into sub-questions as a, b, c, d, etc. & the allocation of Marks depends on the weightage of the topic.

All questions are compulsory.			
Question	Based on	Options	Marks
Q.1	Unit I	Any 3 out of 5	15
Q.2	Unit II	Any 3 out of 5	15
Q.3	Unit III	Any 3 out of 5	15
Q.4	Unit IV	Any 3 out of 5	15
Q.5	Unit V	Any 3 out of 5	15

III. Practical Examination – 50 Marks

Each core subject carries 50 Marks

40 marks + 05 marks (journal) + 05 marks (viva)

Duration: 2 Hours for each practical course.

- Minimum 80% practical from each core subjects are required to be completed.
- Certified Journal is compulsory for appearing at the time of Practical Exam
- The final submission and evaluation of journals in electronic form using a Learning Management System / Platform can be promoted by college.
- For TYBSc Examinations, one external from nearby college should be present

IV . Additional Credits (2 credits per year , 1 per semester)

As proposed at the college level, each student is supposed to acquire two additional credits per year indicating approx. 1 credit per year (where 1 credit means minimum 15 hours of work). The teachers proposed that the credits can be assigned for their work in the field of computer science / information technology / data science in any one of the following -

- A Certificate course beyond syllabus
- A research paper presentation/publication
- Contribution in Department activities
- Participation in competitions
- Internship

Some of these points would be incorporated in the syllabus whereas decisions with respect to some points would be finalized after the meetings with the Academic Council/Examination Committee.

Mr. Kamlakar shared that this autonomous course would also be empowered by an academy called Global Gyaan who would offer training, placements and internships by industry experts so that the students would be industry-ready when they pass out.

Agenda 6 - To discuss and approve the list of Examiners and Moderators for the assessment of the End Semester Exam.

Mr. Kamlakar shared that following have been proposed at college level and the department would like to adapt the same -

- (i) No moderators for Theory Examinations
- (ii) One External from nearby colleges for TY Practical Examinations

This was passed without any query.

Agenda 7 - To discuss methodologies for innovative teaching and evaluation techniques.

Regarding this agenda, some points got covered in the previous agendas. The Department also shared the various types of add-on/online courses that it would like to offer the students such as -

Course Name	Duration (in hrs)	Type	Target Audience	Cost	Who will conduct
Excel	15-20	Online	Anyone	To be decided	Mr. Kamlakar
Aptitude Test Preparation	15	Online	SY	To be decided	Mr Sujit
Tableau	20	Online	SY/TY	To be decided	To be decided
Flask	30	Online	SY+TY	2000	Mr. Ignatius
Graphic Designing	15	Online	Any	As mentioned in the site	Udemy Course Link
Cross Platform Mobile App Development (Cordova/ Flutter/ React Native)	33 or 42	Online	SY + TY	As mentioned in the site	ATS Infotech / Udemy Online Course Link
Soft Skill / English Communication /				As mentioned in the site	Courses on Udemy or other universities

The Conduct of these add-on / online courses would depend on -

- Inclusion of technologies in the syllabus itself
- Latest trends in the technology
- Availability of Labs / External Expertise
- Cost
- Feasibility of the course depending on number of students
- Collaboration with other departments like IT

Although the idea and titles of the courses were approved, the experts suggested to get all the courses, structure, evaluation scheme etc approved in the Academic Council.

Agenda 8 - Any other matter with the permission of the chair.

None

The meeting ended with a vote of thanks by the chairman.