Methodologies to Support Weak Students and Encourage Bright Students

Process to identify weak/bright students and steps taken to assist them:

i) Methodology to Identify High Performing Students

- ☐ The high performing students are identified by the subject faculty and class advisor/Mentor from their participation and interaction in class and class activities, performance in the assessment tests and participation in classroom seminars, questioning ability and university result analysis.

- ☐ They are encouraged to take up competitive examinations like Honours, Minors, GATE, GRE, UPSC etc. They are provided with the guidance about patents, project management and prototype building. High Performing students are encouraged to lead the students in various activities of the college.

Musaliar
COLLEGE OF ENGINEERING AND TECHNOLOGY

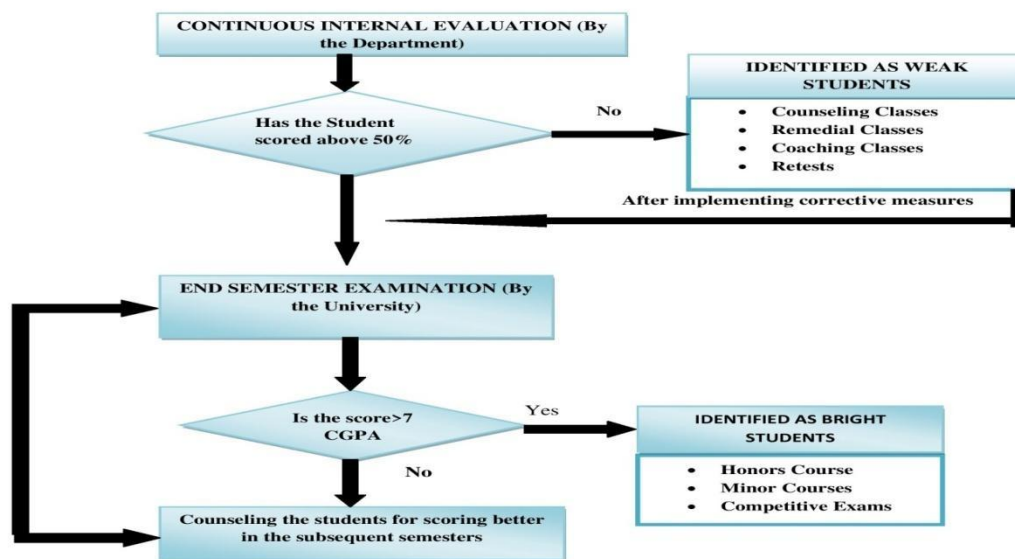Musaliar College PO
Pathanamthitta - 689653
Kerala, India

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Process to identify weak/bright students and steps taken to assist them

Table given below shows Gate coaching class given to bright students.(sample copy)

Table :2.2.1.6 List of Students for GATE coaching

GATE COACHING 2021-2022	
1	Bijimol John
2	Bibin Varghese
3	Greeshma Ganesh

4	Jeethu Johnson
5	Jomol Varghese
6	Sheron Saju
7	Sijas M Salim
8	Vineeth K
GATE COACHING 2020-2021	
1	Abhishek B
2	Anoop M
3	Krishna M Namboothiri
4	Nithin Shibu Mathew
5	Salu V S
6	Chinnu Reji
7	Varsha Reghu
GATE COACHING 2019-2020	
1	Amrutha P Unnithan
2	Angela Marium Joseph
3	Ann Sara Koshy
4	Arun Balaji E
5	Hridya Sunil
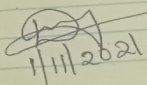
6	Jiluna Joy
7	Jinta Johnson
8	Simy Soman

Proof For Gate Coaching

Time Table for Gate Coaching

DAY	Date	Staff	Subject
Monday	22-11-2021	Dr. Teena Joseph	Data Structure
Wednesday	24-11-2021	Prof. M K Salitha	TOC
Monday	29-11-2021	Prof. Usha Gopalakrishnan	SS
Wednesday	1-12-2021	Prof. Shyma Kareem	OS

Staff Advisory
Deepa Thomas. 1/11/2

Sl No.	Name of Student	Data Structure 22-11-2021	Toc 24-11-2021	SS 29-11-2021	OS 1-12-2021
1	Rajimol John	*	✓	✓	✓
2	Bibin Varghese	×	×	a	×
3	Greeshma Ganesh	×	×	×	×
4	Jeethu Johnson	×	×	×	×
5	Jomol Varghese	×	a	×	a
6	Sheron Saju	×	×	×	×
7	Sijas M Salim	×	a	a	×
8	Vineeth K	×	×	×	×

Staff Advisor.
Prof. Deepa Thomas

GATE Coaching Timetable

Honours

 The University curriculum for Computer Science & Engineering is offering honors degree for bright students. In 2015 Regulation high performing students with a CGPA above 8 at the end of the fourth semester and having no credit arrears are eligible for studying Honors. Student can start studying their honors course from sixth semester onwards. In 2019 regulation bright students have the opportunity to decide the honors subject from fourth semester onwards.

- HoD assigns a faculty for taking classes for the students. Hours are allotted in the time table for honors subject.
- Two internal exams and two assignments are given to students.
- Table shows the list of students who are eligible for taking honors.

Musaliar College Of Engineering & Technology,Pathanamthitta
Department Of Computer Science & Engineering
List Of Student for Honours(2017-2021Batch)

HONOURS 2020-2021(S7 CSE) (2015 Regulation)		SUBJECT FOR HONOURS
1	Abhishek B	C407 Digital Image Processing
2	Salu V S	
HONOURS 2019-2020(S6 CSE) (2015 Regulation)		SUBJECT FOR HONOURS
1	Abhishek B	C320 Mobile Computing
2	Salu V S	

Honors Subjects and List of Studenst of 2017-2021 Batch

Minor:

The University curriculum of 2019 Regulation for Computer Science & Engineering is offering minor degree for bright students. The students have the opportunity to take subject from another department as their minor subject. There is no limitation in credit for taking minor subject. Hours are allotted in the time table for minor subject.

- Two internal exams and two assignments are given to students.
- Table shows the list of students who are eligible for taking minor.

Musaliar College Of Engineering & Technology,Pathanamthitta
Department Of Computer Science & Engineering
List Of Student for Minors(2019-2023Batch)

Sl No.	University Reg No	Name of student
1	MCK19CS001	Aathmana Aswini
2	MCK19CS002	Adwaith P A
3	MCK19CS003	Afsiya S
4	MCK19CS008	Anvarsha C
5	MCK19CS009	Archana
6	MCK19CS012	Asif Asharuf
7	MCK19CS013	Aswathy S Nair
8	MCK19CS014	Daine Thomas
9	MCK19CS016	Jamiya Shihab
10	MCK19CS017	Jeny K Berly
11	MCK19CS018	Jobin Varghese
12	MCK19CS019	Karthik U
13	MCK19CS020	Libin N Liju
14	MCK19CS021	Niyamol S Nair
15	MCK19CS023	Rahanaz Habeeb
16	MCK19CS026	Riya Mathew
17	MCK19CS027	Riya Thankam Biju
18	MCK19CS032	Sibyl Babu Joseph
19	MCK19CS034	Stephen Sam Simon
20	MCK19CS035	Sudeep S
21	MCK19CS036	Surya Anish
22	MCK19CS038	Vyshak Prakash

Minor List 2019- 23 Batch

ii) Methodology to identify weak students:

● Slow learners are identified by the faculty through analyzing various records of the students like Internal Assessments, Assignment performances, activeness in the class, responding capability and performance in seminars and projects.

- The slow learners are then given special attention by the subject faculties.
- The remedial classes are scheduled for enhancing the capability of slow learners. These are scheduled and is conducted by the respective teachers. The slow learners are also provided with additional materials to make their learning easier.
- The morning test conducted by the department helps the slow learners to understand more questions in relation to the subject and gain experience in how to write answers to various questions to obtain marks.

Remedial Class Details (2020-2021)

S3 CSE   Time table (Remedial)

Thursday - (2 - 3) PM
Thursday - (2-4 pm)
Saturday - (2-4 pm)

No. of Students: 18

8/9/2020 — Logic System Design
15/9/2020 — Object Oriented Programming
17/9/2020 — Discrete Mathematics
19/9/2020 — Sustainable Engineering
22/9/2020 — Logic System Design · Data Structures
24/9/2020 — Logic System Design
1/10/2020 — Discrete Mathematics
6/10/2020 — Design & Engineering
8/10/2020 — Sustainable Engineering
13/10/2020 — Object Oriented Programming
15/10/2020 — Discrete Mathematics
20/10/2020 — Data Structures
22/10/2020 — Logic System Design
3/11/2020 — Design & Engineering
5/11/2020 — Discrete Mathematics
7/11/2020 — Object Oriented Programming
10/11/2020 — Data Structures
12/11/2020 — Sustainable Engineering
17/11/2020 — Design & Engineering
21/11/2020 — Logic System Design
24/11/2020 — Data Structures
26/11/2020 — Discrete Mathematics
3/12/2020 — Object Oriented Programming
8/12/2020 — Design & Engineering
10/12/2020 — Data Structures

List of Students

1. Ajob Naser (4)
2. Akshay Krishnan (5)
3. Albin K. Binu (6)
4. Amilar K. Prince (7)
5. Arshw Suhrdy (10)
6. Annu Mon · C · R (11)
7. Georgie Thomas (15)
8. Poorin Mathew (22)
9. Rahul · J · Pillai (24)
10. Rohansha Rasheed (25)
11. Sabarinadth P (28)
12. Sachu · K · S (27)
13. Sajath Chacko (30)
14. Shibin Tom (31)
15. Sidharth G·K (33)
16. Swetha Elsa John (37)
17. Vadhu Krishnan (39)
18. Yamuna Krishnan K R (40)

Shyma Kovam
Staff Advisor

Dr. L. C Manikandan
HoD

Shyma Kovam
Staff Advisor

Attendance:

Figure 2.2.1.23 Schedule and Attendance of Remedial Class

Self-learning facilities:

In order to improve the self-learning capabilities of the students the following facilities are provided.

- Central library and department library
- Digital library
- Journals and magazines
- Internet laboratory
- E-learning and online certification courses
- NPTEL course materials
- IIT spoken tutorial
- SWAYAM online courses

Students mentoring system:

- Staff Advisors is in charge for each 15-20 students to monitor their performance in the internal and university examinations.

- The Staff Advisors takes care of discipline and other activities of the students.

- The student records containing all the details of the students are properly maintained by the staff advisors

- The Staff Advisors analyse the problems faced by each student and also solve their difficulties in learning.

- Career guidance is given to the students according to their area of interest.

- Staff Advisor counsels their ward minimum two times in a semester.

- Staff Advisor enters the counselling details in the counselling register and follows up the details if necessary.

- By personal counselling and motivation, they will be getting the following advantages.

- Better results in terminal and university examination.

- Considerable increase of students in placement.

- Table below shows the list of class advisors during the current academic year and previous years.

List of Staff Advisors/Mentors

CLASS ADVISORS/MENTORS LIST (2021-2022)		
Sl .No.	**YEAR-SEMESTER**	**NAME OF FACULTY**
1	FIRST YEAR-S1CSE, S2CSE	Prof M K Salitha Prof. Athira B

2	SECOND YEAR-S3 CSE, S4 CSE	Prof Giri S M Prof. Amrutha S Nair
3	THIRD YEAR-S5 CSE, S6CSE	Prof Shyma Kareem Prof Indula Subash
4	FOURTH YEAR-S7 CSE, S8CSE	Prof Deepa Thomas Prof Ruby Thankam George

CLASS ADVISORS /MENTORS LIST (2020-2021)		
SI .No.	YEAR-SEMESTER	NAME OF FACULTY
1	FIRST YEAR-S1CSE, S2CSE	Prof Giri S M Prof Arya Jayakumar
2	SECOND YEAR-S3 CSE, S4 CSE	Prof Shyma Kareem Prof M K Salitha

3	THIRD YEAR-S5 CSE, S6CSE	Prof Deepa Thomas Prof Noufia Nushad
4	FOURTH YEAR-S7 CSE, S8CSE	Prof Jan Mary Thomas Prof. Indula Subash

Mentor Allotment 2018-2022 Batch

D. Quality of Classroom teaching

Quality in classroom teaching is important for the student and will greatly impact the teaching learning process. The teachers adopt various innovative teaching methods to keep the students in full concentration during the class hours. The ambience of the class is also maintained to create a positive learning experience for the students. The various initiatives are:

- The classrooms are spacious, with proper lightings and ventilations to create an excellent ambience for learning.
- The classrooms are equipped with LCD projectors to make learning interactive.
- Online videos and lectures are used to make a better understanding of various topics.
- The lecture is subdivided into introduction, explanation, application and conclusion with real world examples.
- Tutorial classes are conducted for analytical subjects for helping the students to solve complex problems under the guidance of faculty.
- Students are encouraged to be interactive in class through discussions along with doubt clearance sessions.
- Quizzes are conducted for some courses.
- Academic calendar is displayed in the notice board for students to have an awareness about the department activities throughout the semester.
- Principal, Deans and Head of the Department visits the classes randomly for monitoring teaching learning processes.
- Students are also motivated to give a snap talk on their interested area or recent trends.

Various Teaching Method

SL No.	Teaching methods	Description of the methods

1	Chalk and talk	• Focuses on the blackboard, voice and expressions of faculty
2	Lecture using PPT	• Students understand the concept easily through the use of multimedia which helps them to be more attentive. • Animation videos and presentation slides improve the students 'learning by giving ideas virtually about the particular topic. • Students learn the content in a more meaningful way by using different media elements.
3	Assignment /Tutorial	• Helps the students to have deeper understanding in the course and to work independently. • Case studies improve critical thinking and students' awareness on contemporary issues. • Analytical skills are improved through tutorial classes.
4	Industrial visit	• Demonstration of real-time working projects, networking equipment, server etc. in the industry gives exposure in technical knowledge and Industrial environments for the students
5	Group discussion	• Group discussion on current topics related to the courses which help the students to update knowledge and improve communication
6	Technical Seminars / Workshops / Invited talks	• Seminars / Workshops / invited talks help the students to enhance their technical knowledge, to improve communication skills and continue lifelong learning.
7	Video Lecture and presentations	• Students effectively understand the concepts from domain experts through video lecture of IIT professors available from various sources such as NPTEL, open courseware etc. • Video presentations effectively communicate the working of actual engineering solutions and their impact.

8	Experimental Demonstration	● Students understand the theoretical concepts more clearly through experiments
9	Mini Projects/Design Projects	● Mini projects/Design projects help the students by giving a preliminary idea about the main project.
10	Student Seminar	● Students can take seminar on recent technology/recent trends etc.

E. Conducts of Experiments (Observation in the Lab)

Labs are effective learning atmospheres where students understand not only how to do the experiments, but also why the concept or process is important in their studies and how it might be applied or connected to real-world situations.

- Laboratory classes are conducted in 3-hour sessions; the faculty explains the algorithm and gives a demo of how to run a program.
- The students are then directed to execute the programs, find out the output, write output and the results obtained in the rough record/fair record.
- The rough record/fair record is submitted to the faculty in-charge and gets his/her approval, the record of the concerned lab contains the title of the program, the aim of the program, algorithm, code for the program, result and the output of the experiment.
- A continuous evaluation process is carried out for the laboratories where the faculty in charge monitors and evaluates the performance of the student for each experiment.
- Lab manuals are maintained at each lab in order to have a better understanding of the concepts by the students.

DQAC assures the quality of labs. Head of the Department ensures the timely up-dation of labs. Faculty in charge of lab section report any malfunction to HoD. The periodic maintenance is done by qualified technical staff and external help of qualified technician and suppliers are brought to maintain the systems in working condition.

- The concerned faculty in charge for the laboratory is responsible for creating the lab cycle at the beginning of each semester.
- The prepared lab cycle is submitted to the DQAC before the commencement of each semester.
- After getting the approval from DQAC lab cycle is given to the student along with an overview of the programs that are going to be covered in the laboratory.
- It is mandatory for the students to complete the laboratory programs in the rough/fair record describing the aim and algorithm before the start of lab sessions.

Figure 2.2.1.26 Programming &Data Structures Lab

During Lab Hours

Step: 1

The question based on logic, design or the algorithm of the experiments is explained (by faculty in-charge) in detail to the students before the commencement of the lab.

Step: 2

The students are then asked to write the algorithm for the program.

Step: 3

The programs can be done individually. In addition to faculty in charges, assistance in doing experiments is provided by the concerned lab staff.

Step: 4

The output of the experiments are verified by the faculty in charge/lab staff, analysis is documented in the record book by the students which are later evaluated by the concerned faculty. Students have to attend viva session in every lab. They are evaluated based on their knowledge in the current program executed. As per APJAKTU curriculum, for each experiment, viva is conducted and the mark is recorded.

Allotted Credits and Duration of Laboratory Work

☐ In a semester normally up to six lectures-based courses and two to three laboratory/practical courses, carrying a maximum credit of 26 are offered.

☐ One credit for each laboratory/ practical session of 2 or 3 hrs. per week for one semester.

F. Continuous Assessment in the laboratory

Continuous assessment system is implemented for the assessment of laboratory work. The assessment is done on the basis of student involvement in performing, understanding the experiment and on time submission of laboratory records. According to the APJAKTU norms the marks distribution splits into two sections. First 70 marks for continuous assessments based on lab performance and remaining 30 marks for End semester lab exam. The continuous assessment mark is divided as follows.

Table2.2.1.9 Continues Evaluation Marks

Division	Lab preparation and performance	Technical Writing	Viva
Maximum Mark	40	20	10

- End semester examination: 30 marks

The practical Examination are conducted as per the schedule in the academic calendar with two examiners (need not be faculty member engaging the practical classes.) from the department.

Lab Evaluation Criteria (APJAKTU-2015 Regulation)

- **Continuous Evaluation - 70 Marks**
- **Internal Exam - 30 Marks**

Lab Evaluation Criteria (APJAKTU -2019 Regulation)

- **Continuous Internal Evaluation   - 75 Marks**
- **End Semester Examination - 75 Marks**

Table 2.2.1.10 Lab Conducting Process

S. No	Experiment conducting process	Description of the processes
1	Collaborative learning	Weak and bright students interact with each other to find output for the problem for the given experiment.
2	Conducting experiments	As per the syllabus laboratory manual are prepared students can refer those in need of doing their advanced/design based/open ended experiments.
3	Recording observations	Obtained output are recorded in the rough/fair record.
4	Evaluation of result	Verification of program, execution of experiments and answers for viva voce questions.

Sample Copy of Lab Experiment with PO, PSO Mapping

Table 2.2.2.1.11 List of Experiments Mapping with COs POs and PSOs

List of Experiments mapping with COs, POs and PSOs:				
Exp. No	Name of the experiment	Mapping with COs	Mapping with POs	Mapping with PSOs

1	Write a Java program that checks whether a given string is a palindrome or not. Ex: MALAYALAM is palindrome	CO1	PO3, PO4, PO5, PO9, PO10	PSO1, PSO2
2	Develop a Java Program to find the frequency of a given character in a string.	CO1	PO3, PO4, PO5, PO9, PO10	PSO1, PSO2
3	Java program to implement single inheritance which creates a class named 'Employee' having the following members: Name, Age, Phone number, Address, Salary. It also has a method named 'printSalary( )' which prints the salary of the Employee. Two classes 'Officer' and 'Manager' inherits the 'Employee' class. The 'Officer' and 'Manager' classes have data members 'specialization' and 'department' respectively. Now, assign name, age, phone number, address and salary to an officer and a manager by making an object of both of these classes and print the same.	CO1	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
4	Implement a java program to create an abstract class named Shape that contains an empty method named numberOfSides( ). Provide three classes named Rectangle, Triangle and Hexagon such that each one of the classes extends the class Shape. Each one of the classes contains only the method numberOfSides( ) that shows the number	CO1	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2

	of sides in the given geometrical structures			
5	Create a Java code to demonstrate the use of garbage collector	CO1	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
6	File handling program in Java with reader/writer.	CO2	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
7	Java program that read from a file and write to file by handling all file related exceptions.	CO2	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
8	Implement Java program that reads a line of integers, and then displays each integer, and the sum of all the integers	CO2	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
9	Java program that shows the usage of try, catch, throws and finally.	CO3	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
10	Java program that implements a multi-threaded program which has three threads. First thread generates a random integer every 1 second. If the value is even, second thread computes the square of the number and prints. If the value is odd the third thread will print the value of cube of the number	CO4	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
11	Implement thread synchronization in Java	CO4	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
12	Java program that works as a simple calculator. Arrange Buttons for digits and the + - * % operations properly. Add	CO5	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2

	a text field to display the result. Handle any possible exceptions like divide by zero. Use Java Swing			
13	Simulates a traffic light. program, lets the user select one of three lights: red, yellow, or green. When a radio button is selected, the light is turned on, and only one light can be on at a time. No light is on when the program starts	CO5	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2
14	Write a Java program to display all records from a table using Java Database Connectivity	CO5	PO3, PO4, PO5, PO8, PO9, PO10	PSO1, PSO2

Good Morning Test

Musaliar College of Engineering and Technology follows a best practice known as Good Morning Test (GMT) for each subject.The GMT exam is conducted during the first half of the first hour.Each subject is allotted at least a first hour weekly. GMT holds three weekly exams for all students, with each staff member providing two or three questions prior to the exam. Students should prepare for the exam by studying the questions. Those who receive a lower grade should be monitored and follow up actions need to be taken.If required, slow learners are also provided with additional study material by the subject teachers.The test mark is only to identify slow learners and it does not affect the internal mark.

Time table for GMT test is shown below

Musaliar College Of Engineering & Technology, Pathanamthitta
Department Of Computer Science & Engineering
Good Morning Test Time Table (Academic Year:2021-2022 ODD)

Week	Day	S3 CSE	S5 CSE	S7 CSE
FIRST	Monday	Discrete Mathematics	Formal Languages & Automata Theory	Computer Graphics
	Wednesday	Data Structure	Computer Network	Programming Paradigm
	Friday	Logic System Design	System Software	Computer System Architecture
SECOND	Tuesday	Object Oriented Programming	Management Of Sotware System	Distributed Computing
	Thursday	Desig& Engineering/Sustainable Engineering	Miroprocessor & Microcontrollers	Cryptography & Network Security
	Monday		Disaster Management	Machine Learning

HoD

Dr. TEENA JOSEPH
HOD
Dept. of Computer Science
and Engineering

Good Morning Test Time Table

IIT Spoken Tutorial:

- Students are encouraged to attend IIT Spoken tutorial online courses every year based on the courses in curriculum.

- Important topics in every course are discussed in the class room by displaying the videos.

NPTEL/ SWAYAM/UDEMY

- Students are encouraged to attend the NPTEL/Udemy online courses every year based on the courses in curriculum.

- Topics in every course are discussed in the class room by displaying the NPTEL videos.
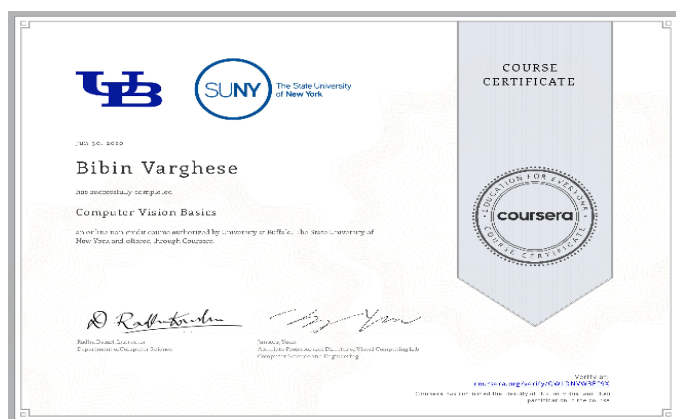
- These courses are an instrument for self-actualization providing opportunities for a life-long learning.
- Courses delivered through SWAYAM are available at free of cost to the learners. The faculty members have enrolled in various courses to develop their course knowledge.

MOOC Details(sample)

Sample Certificate of MOOC

Sample students List

Sl No.	University Reg No	Name Of Student	MOOC COURSES	SUBJECT	DURATION	Relavent to POs/PSOs
1	MCK17CS021	Salu V S	Udemy	Introduction to Machine Learning	12 Weeks	PO12, PSO1, PSO2

2	MCK17CS003	Abhishekh P	Udemy	Introduction to Machine Learning	12 Week	PO12, PSO1, PSO2
3	MCK17CS016	Nithin Shibu Mathew	Udemy	The complete swift iOS developer	49 Hours	PO12, PSO1, PSO2
4	MCK17CS013	Leo Joseph Simon	Udemy	Automate the boring stuff with python programming	9.5 Hours	PO12, PSO1, PSO2
5	MCK17CS019	Riyas R	Udemy	Web development Masterclass	20.5 Hours	PO12, PSO1, PSO2
6	CML17CS007	Chinnu Reji	Udemy	ios 10 developer	49 Hours	PO12, PSO1, PSO2
7	CML17CSOO4	Asha Varghese	Udemy	ios 10 developer	49 Hours	PO12, PSO1, PSO2
8	CML17CS002	Ansu C Yohannan	Udemy	ios 10 developer	49 Hours	PO12, PSO1, PSO2
9	MCK17CS014	Lisa Shaji	Udemy	The complete swift iOS developer	49 Hours	PO12, PSO1, PSO2

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10	MCK17CS018	Reya Mary Jacob	Udemy	The complete swift iOS developer	49 Hours	PO12, PSO1, PSO2
11	MCK17CS011	Kavya S Nair	Udemy	Java course for beginners	41 Hours	PO12, PSO1, PSO2
12	CML17CS040	Preethi Mickle	Udemy	Automate the boring stuff with python programming	9.5 Hours	PO12, PSO1, PSO2
13	MCK17CS008	Badariya Kabeer	Udemy	Data science master course 2020	27 Hours	PO12, PSO1, PSO2
14	MCK17CS022	Shelley Sam Varughese	Udemy	The complete swift iOS developer	49 Hours	PO12, PSO1, PSO2
15	MCK17CS024	Varsha Reghu	Udemy	The complete swift iOS developer	49 Hours	PO12, PSO1, PSO2
16	MCK17CS017	Reshma B	Udemy	ios 10 developer	49 Hours	PO12, PSO1, PSO2

Sample FDP Certificate

: Sample FDP Certificate