Bharath
INSTITUTE OF HIGHER EDUCATION AND RESEARCH
(Declared as Deemed - to - be - University under section 3 of UGC Act 1956)
NAAC
BHARATH INSTITUTE OF SCIENCE AND TECHNOLOGY
No.173, Agharam Road, Selaiyur, Chennai , T.N - 600 073.

Requisition Letter

From
Dr. K.P.Kaliyamurthie,
Professor & Head,
Department of CSE,
Bharath Institute of Higher Education and Research,
Chennai

Date: 08.04.2022

To
The Dean Engineering,
Bharath Institute of Higher Education and Research,
Chennai

Respected sir

Subject: Request of Permission to conduct a value added course on "**Computer Vision Basics**" -Reg

With reference to above subject, I would like to bring to your kind notice that, our department interested to organize value added course on "**Computer Vision Basics**" in our campus premises on **15/04/2022**.

50 students would be participating in this course. We request you kindly to give permission to organize this event.

Venue: **CSE Smart Room**

Timing : **9 am to 4.30 pm**

Submitted to Principal for approval to organize this value added course.

HOD/CSE

DEAN ENGINEERING

HEAD OF DEPARTMENT
Department of Computer Sci... & Engg.,
Bharath Institute of Higher Education & Research
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Chennai-600 073. INDIA

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CIRCULAR

11.04.2022

The School of computing, Bharath Institute of Higher Education and Research is planned to conduct a certification value added course on **"Computer Vision Basics"** for the benefit of II, III and IV year students. This course is scheduled from 15.04.2022 for 30 hours which includes theory and practical. The timings are 01:30 PM to 04:30 PM

All Registered Students must attend all the classes without fail. The following faculty members are assigned to handle the course. S.NO	**Name of the Faculty**	**Designation**
1	Dr.KP.Kaliyamurthie	Professor
2	S.Pothumani	Assistant Professor

Head of Department

To

Copy to CSE

Copy to IT

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CERTIFICATE COURSE ON COMPUTER VISION BASICS

Date of Introduction of the Course: 15.04.2022

COURSE SYLLABUS

1.Introduction to computer vision

Introduction to Digital Image Processing and Machine Learning, Visualization Techniques, Image Processing and Analysis.

2.Image Formation and Filtering

Cameras and Optics, Image Enhancement and Enlargement, Pixel Representation.

3.Light and Color and Image Filtering

Thinking in Frequency, Image Processing Algorithms, Image Filtering Techniques.

4.Feature Detection and Matching

Interest points and corners, Local image features,Model fitting, Hough Transform, RANSAC and transformations.

5.Multiple Views and Motion

Stereo intro and Camera Calibration, Epipolar Geometry and Structure from Motion, Stereo Correspondence and Optical Flow.

6.Recognition

Machine learning crash course and recognition overview, Recognition and Bag of Words.

7.Large-scale retrieval

Spatial Verification, TF-IDF, Query Expansion, feature encoding, Large-scale category recognition and advanced feature encoding,

8. Detection with sliding windows

Viola Jones, DalalTriggs and Pascal VOC

9.Big Data

Big Data Tools-hadoop,Informatica, Crowdsourcing and Human Computation.

10. Deep Learning

Neural networks Basics and Convolutional Networks, Object Detectors Emerge in Deep Scene CNNs and Deeper Deep Architectures,Structured Output from Deep Network.

11. Image Acquisition

Image Sensing, X-Ray Image, Image acquisition using Radiography application.

12.Image Representation and Analysis

Colour Representation, Colour and Geometric Transformation, Edge Detection,

13. Features and ObjectRecognition

Image Colorization, Objectives of Object Recognition Task, Information Extraction from Image, Recognition of color and object in Image.

14.Image Segmentation

K-means Clustering, Edge and Contour Detection, Background Subtraction for Video.

15.Image Captioning

CNN, RNN, LSTM Implementation for Caption Generation.

COURSE OBJECTIVES

In this course we plan to give students an overview of the field of Image Procession and Computer Vision, and an in-depth study into its enabling technologies and main building blocks. Students will gain hands-on experience solving relevant problems through projects that will utilize existing public cloud tools. It is our objective that students will develop the skills needed to become a practitioner or carry out research projects in this domain.

Specifically, the course has the following objectives:

Students will learn

1) To be familiar with both the theoretical and practical aspects of computing with images;
2) To describe the foundation of image formation, measurement, and analysis;
3) To implement common methods for robust image matching and alignment;
4) To understand the geometric relationships between 2D images and the 3D world;
5) To be exposure to object and scene recognition and categorization from images;
6) To grasp the principles of state-of-the-art deep neural networks; and
7) To develop the practical skills necessary to build computer vision applications.

COURSE COORDINATOR **HEAD OF THE DEPARTMENT**

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CERTIFICATE COURSE ON COMPUTER VISION BASICS

Date of Introduction of the Course:15.04.2022

The timings are 01:30 AM to 04:30 PM Friday (AN) and Saturday (FN&AN).

Time Table& Lesson plan

CLASS	DATE	TOPIC
1,2	15.04.2022 (AN)	**1. BASICS OF JAVA** History and Features of Java, C++ vs Java, Hello Java Program, Internal How to set the path?, JDK, JRE, and JVM (Java Virtual Machine),JVM Memory Management,Internal details of JVM, Unicode System, Operators, Keywords, and Control Statements like if-else, For loop, while loop, etc.
3,4	21-04-2022(AN)	**2. CLASS, OBJECT, AND TYPES OF CLASSES** Classes, Objects, and Features, Object declaration and initialization, Life cycle of an object, Anonymous object in Java, Classes and Objects in java with Realtime examples
5,6	22-04-2022(FN)	**3.PACKAGES IN JAVA** Package naming conventions, Sub packages, Types of packages such as user-defined packages, built-in packages, Importing packages in Java
7,8	22-04-2022(AN)	**4. DATA TYPES IN JAVA** Data types in Java - Primitive data types, Non-primitive data types, Memory allocation of primitive and non-primitive data types, etc.
9,10	28-04-2022(AN)	**5.VARIABLES, CONSTANTS, AND LITERALS** Variable declaration & initialization - Naming convention, Types of variables such as local variables, instance variables, and static variables, Scope and memory allocation of variables.
11,12	29-04-2022(FN)	**6. METHODS IN JAVA** Methods in Java - Use of method in Java, Method declaration, method signature, Types of methods in Java: predefined method, user-defined methods: instance method, static method, Calling of method, Java main method, Return type in Java.
13,14	29-04-2022(AN) 05-05-2022(AN)	**7. CONSTRUCTOR IN JAVA** What is Constructor in Java? ,Types of constructors: Default and Parameterized constructors, Java constructor overloading, Constructor chaining in java, Copy constructor in Java

15,16	06-05-2022AN) 12-05-2022(FN)	**8. INNER CLASSES AND WRAPPER CLASSES** Introduction, Member Inner Class, Static Inner Class, Local Inner Class, Anonymous Inner Class, Introduction, Byte, Short, Integer, Long, Float, Double, Character, Boolean classes
17,18	13-05-2022(FN)	**9. COLLECTION FRAME WORK** Introduction, Util Package interfaces, List, Set, Map, List Interface 7 Its Classes, Set Interface & Its Classes, Map Interface & Is Classes
19,20	13-05-2022(AN)	**10. AWT** Introduction, Components, Event-Delegation-Model, Listeners, Layouts, Individual Components Lable, Button, Check Box, Radio Button,Choice, List, Menu, Text Field, Text Area
21,22	19-05-2022(AN)	**11. SWING (JFC)** Understanding Session Hijacking, Phases involved in Session Hijacking, Types of Session Hijacking, Session Hijacking Tools - Introduction Diff B/W AWT and SWING, Hierarchy, Individual Swings components J Label, JButton, JTextField, JTextAres
23,24	20-05-2022(FN)	**12. WEB SERVER AND APPLICATION SERVER** Tomcat-Introduction, Overview, installation, Configuring Tomcat, Jboss server-Introduction, Overview, Installation and Configuration, Comparison
25,26	20-05-2022(AN)	**13. SQL and JDBC** Basics of SQL queries, SQL Joins , JDBC Introduction, JDBC Architecture, Types of Drivers, Statement, Result Set, Read Only Result Set, Updatable Result Set, Forward Only Result Set, Scrollable Result Set, Prepared Statement
27,28	26-05-2022(AN)	**14. SERVLETS** Introduction, Web application Architecture, HTTP Protocol & HTTP Methods, Web Server & Web Container, Servlet Interface, HTTPServlet, GenericServlet, Servlet Life Cycle, Servlet Config, Servlet Context, Servlet Communication
29,30	27-05-2022(FN)	**15. JSP** Introduction, JSP Life Cycle, JSP Implicit Objects & Scopes, JSP Directives

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CERTIFICATE COURSE ON COMPUTER VISION BASICS

Date of Introduction of the Course: 15.04.2022

School of Computing

Registered Students Name List

S.NO	REG.NO	NAME OF THE STUDENT
1	U14CS148	RAMYA.B
2	U14CS177	K.SIVA SUBRAMANIAN
3	U14CS222	M.GANESH RAJAN
4	U14CS225	ARJHUN KUMAR.K
5	U14CS229	INDHU GOPALAKRISHNAN
6	U14CS703	VASANTHAN.N
7	U14CS705	SHABEEK ABUTHAHIR.S
8	U14CS710	SHOPMINISTER
9	U14CS047	DEVULAPALLY NAGARAJU
10	U14CS052	GARLAPATI HEMA SAI KRISHNA
11	U14CS053	GODJSELA SRINATH
12	U14CS054	GONTLA KARTHIK
13	U14CS175	SHUBHAM
14	U14CS176	SIREESHA.M
15	U14CS178	SK MD TAUQEER
16	U14CS179	SNEHA ROY
17	U14CS180	SABUJ BARMAN
18	U14CS181	SOURABH PRIYADARSHI
19	U14CS108	MURALI .S
20	U14CS156	SAGI AKSHAY KUMAR
21	U14CS157	SAJJA. SURENDRA PRASAD
22	U14CS158	SAMPA PARH
23	U14CS159	SANASAM VEDRAJ SINGH
24	U14CS160	SANDEEP INGUVA
25	U14CS161	SANJAY KUMAR YADAV
26	U14CS162	SANTHOSH KUMAR.N
27	U14CS163	SASHAANK.S

28	U14CS164	SAURAV KUMAR
29	U14CS165	SAURAV SINGH
30	U14CS224	R.SINDHU
31	U14CS234	DANDU MOHAN RAJENDRA VARMA
32	U14CS706	RAFTEN WANCHU
33	U14CS166	SHAFAN HASIM.N
34	U14CS167	SHAIK AATIKA
35	U14CS156	SAGI AKSHAY KUMAR
36	U14CS157	SAJJA. SURENDRA PRASAD
37	U15CS113	MAMUNDURU BHARATH KUMAR
38	U15CS114	MANCHALA ROHITH
39	U15CS115	MANCHIKANTI RAJITHA
40	U15CS117	MANOJ KUMAR R
41	U15CS118	MANUGUNTA BHARGAVI
42	U15CS119	MARRIBOYINA GOVARDHAN YADAV
43	U15CS120	MARRIPUDI KRISHNA CHAITANYA
44	U15CS121	MD MINHAZ RAZA HASHMI
45	U15CS247	CHIMALAMUDI VINEEL
46	U15CS248	SOMESH.C
47	U15CS249	SUBHAN KUMAR SHAH
48	U15CS250	MUTHULAKSHMI.M
49	U15CS253	JOEL PRAKASH.J
50	U15CS254	JAGATH RAJAH.R

COURSE COORDINATOR

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CERTIFICATE OF PARTICIPATION

This certificate is presented to

R.MANOJ KUMAR

For actively participating in the value added course "Certificate Course on Computer Vision Basics"

Conducted by School of Computing, BIHER from 15.04.2022 to 27.05.2022.

COURSE COORDINATORS

HEAD OF THE DEPARTMENT

DIRECTOR

COURSE FEEDBACK FORM

Academic Year		2022				
Term		Even Sem				
Course Number						
Course Title		computer Vision				
Number of Credits						
Type of Course	Regular		Elective		Add-on	✓

I. Information on the Respondent: (Tick (√) Appropriately)

1. **Percentage of classes attended**

0-20		20-40	✓	40-60		60-80	

2. **Number of hours per week spent on the course (Other than lecture hours)**

0-2		2-4		4-6	✓	6-8	

3. **Preparation for the course by the student:**

(i)	Have done part of this course earlier	Y
(ii)	Has adequate prior exposure to the prerequisites	Y
(iii)	Had to pickup relevant additional topics through concurrent study	Y
(iv)	Have no exposure to the background material	Y

4. **The expectations for taking the course by the student are:**

(a)	Enhance by skill base in the area of specializations	Y
(b)	Get exposed to a relevant subject	Y
(c)	Curiosity	Y
(d)	Better Employment Opportunity	Y
(e)	Complete Course requirements	Y
(f)	To Improve CGPA	Y

About the Instructor: Information on the Respondent: (Tick (√) Appropriately)

		A	B	C	
1.	Pace of the Teaching/lecture	✓			
2.	Comment of the Subject		✓		
3.	Clarity of expression	✓			

4.	Level of preparation				
5.	Level of interaction				
6.	Accessibility outside the class				
7.	Others (please specify				

A: Excellent		B: Very Good		C: Good		D: Satisfactory	

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COURSE FEEDBACK FORM

Academic Year		2022				
Term		Even Sem				
Course Number						
Course Title		Computer Vision				
Number of Credits						
Type of Course	Regular		Elective		Add-on	✓

I. Information on the Respondent: (Tick (√) Appropriately)

1. **Percentage of classes attended**

0-20		20-40	✓	40-60		60-80	

2. **Number of hours per week spent on the course (Other than lecture hours)**

0-2		2-4		4-6	✓	6-8	

3. **Preparation for the course by the student:**

(i)	Have done part of this course earlier	Y
(ii)	Has adequate prior exposure to the prerequisites	Y
(iii)	Had to pickup relevant additional topics through concurrent study	Y
(iv)	Have no exposure to the background material	Y

4. **The expectations for taking the course by the student are:**

(a)	Enhance by skill base in the area of specializations	Y
(b)	Get exposed to a relevant subject	Y
(c)	Curiosity	Y
(d)	Better Employment Opportunity	Y
(e)	Complete Course requirements	Y
(f)	To Improve CGPA	Y

About the Instructor: Information on the Respondent: (Tick (√) Appropriately)

		A	B	C	
1.	Pace of the Teaching/lecture	✓			
2.	Comment of the Subject		✓		
3.	Clarity of expression		✓		

4.	Level of preparation					
5.	Level of interaction					
6.	Accessibility outside the class					
7.	Others (please specify					

A: Excellent		**B: Very Good**		**C: Good**		**D: Satisfactory**	

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