



**Bharath**  
**INSTITUTE OF HIGHER EDUCATION AND RESEARCH**  
(Declared as Deemed - to - be - University under section 3 of UGC Act 1956)



**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: 23.07.2018

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 "**Graduate Diploma in Professional Game Development**" -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 "**Graduate Diploma in Professional Game Development**" in our campus premises on **02/08/2018**.

45 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**

HEAD OF DEPARTMENT  
Department of Computer Science & Engg.,  
Bharath Institute of Higher Education & Research  
(Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
Chennai-600 073. INDIA

**DEAN ENGINEERING**





# Bharath

**INSTITUTE OF HIGHER EDUCATION AND RESEARCH**


(Declared as Deemed-to-be University under section 3 of UGC Act 1956)

## CIRCULAR

27.07.2018

The School of computing, Bharath Institute of Higher Education and Research is planned to conduct a certification value added course on **GRADUATE DIPLOMA IN PROFESSIONAL GAME DEVELOPMENT** for the benefit of II, III and IV year students. This course is scheduled from 02.08.2018 for 30 hours which includes theory and practical. The timings are 3:00 PM to 4:00 PM from Monday To Friday

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	AllinJeo	Assistant Professor
2	R.Velvizhi	Assistant Professor

  
Head of Department

To

Copy to CSE

Copy to IT

HEAD OF DEPARTMENT  
Department of Computer Science & Engg.,  
Bharath Institute of Higher Education & Research  
(Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
Chennai-600 073, INDIA





## **CERTIFICATE COURSE ON GRADUATE DIPLOMA IN PROFESSIONAL GAME DEVELOPMENT**

**Date of Introduction of the Course: 02.08.2018**

### **COURSE SYLLABUS**

#### **Course Description:**

This purpose of this course is twofold: to provide a strong foundation in softwareengineering, programming, and the C# language; and to work on all major aspects of developing video games using the Unity engine. These two purposes are closely tied: a large part of video game development centers on programming and software development, and to be a game developer requires a high level of knowledge in a modern, object-oriented language like C#. Through this course, students will learn programming by working on games, and will learn to write code to run every part of their game, from physics to AI to game servers. Rather than focusing narrowly on topics needed to make games, this course will teach you to be a programmer with a solid foundation. This course will allow you to be able to enter any programming field you'd like, from mobile apps to web servers. (This is actually a common path for game developers: they spend a few years in a related field working on their programming skills before moving to game development.)

#### **1. Introduction**

Introduction to game design and production

Unity production basics: Lighting, materials - effects etc - Creating a simple game - C# in game development

#### **2. 3D Technology**

Working with 3D - games Rigidbody – physics - User input and UI - Game Design 101: Balancing games - analyzing games - the MDA framework - CubeShip Game - Game Programming - 101 Working with Animations.

#### **3. Programming Games**

Game Programming 102

Game Design 102: Choice, agency, aesthetics, and more UI Development - Unity Editor Intermediate Topics - Raycasting- Exam.



#### **4.Game Design**

Start on Game Design 1 - Game Programming 103 - 3D Characters: Animation & control  
Intermediate Game Production - Event Systems & Delegates.

#### **5.Game Libraries**

Game Design 1 wrap-up - Intermediate Game Production Topics - Game Programming  
104 - Useful code libraries - Data Structures - Global Illumination

#### **6.Game Tutorials**

2D Game Jam - Exam 2 - Game Design 103: Level Design & Tutorials.

#### **7.Debugging Games**

Start on Last major game design - 3D Models – Debugging - Introduction to Git - Editor  
extensions I/O.

#### **8.Artificial Intelligence**

Intro to AI – FSMs - Game design project.

#### **9.Game Project**

Procedural - generation Exam 3 - Game design project.

#### **10.Programming Applications**

Beyond Game Design: Programming - applications Algorithms & Trees - Game design  
project.

#### **11.Design Patterns**

Affordances & User - Experience Design Patterns - Final game design - presentations  
Exam 3

#### **12.Web servers**

Networking intro & JSON - Creating non-Unity C# - applications Web server basics.

#### **13.Deployment of Servers**

Deploying web servers - Creating a RESTful-interface.



#### **14.Database Connectivity**

Connecting games to services Databases - Other networking topics

#### **15.Advancement in GameDevelopment**

Course Wrap-Up - Advanced programming topics (TBD)

##### **Course Objectives:**

Students will work on nearly all aspects of game design and production:

storyboarding, level design, texturing & materials, programming, terrain, physics, animation, 2D & 3D rendering, and user interface, among others. Students will learn the Unity game engine and the C# programming language, and create multiple games for their portfolio. Other topics may be introduced, for instance shader generation, game server development, VR, and other advanced topics.

The course will focus heavily on making actual games and writing software. Students will create 4-5 games through the course, with 2 major game designs that will be demoed publicly to members of the local game dev community. More than half of the course focuses on programming, software development, and the C# language, which is a major component of game development. The course introduces advanced C# topics like polymorphism, generics, and reflection. It also introduces general software engineering topics like design patterns, algorithms, data structures, memory management, serialization / JSON, and more. The course includes an introduction to server-side architecture (C# server applications, RESTful interfaces, SQL databases, and more), which is a critical part of most modern game development and can also be a career outside of games.

By the end of the course, if you've kept up with all materials, you can expect an intermediate mastery of the Unity engine and the C# programming language, with some knowledge of advanced topics. You will have the foundation to become an advanced game developer. You will also have the foundation to pursue other careers in programming, from PC and mobile applications to web servers. You will have both knowledge (of ideas, terms, programming topics, and game design topics) and practical skills, and should be well on your way to being prepared for an entry job in the field (or related fields).

  
**COURSE COORDINATOR**

  
**HEAD OF THE DEPARTMENT**

HEAD OF DEPARTMENT  
Department of Computer Science & Engg.,  
Bharath Institute of Higher Education & Research  
(Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
Chennai-600 073. INDIA





**CERTIFICATE COURSE ON GRADUATE DIPLOMA IN  
 PROFESSIONAL GAME DEVELOPMENT**

**Date of Introduction of the Course: 02.08.2018**

**The timings are 2:00 PM to 4:00 PM from Friday (AN) and Saturday (FN&AN).**

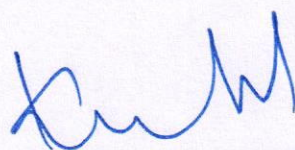
**Time Table & Lesson plan**

CLASS	DATE	TOPIC
1,2	2.8.2018(AN)	<b>1. Introduction</b> Introduction to game design and production Unity production basics: Lighting, materials - effects etc - Creating a simple game - C# in game development
3,4	3.8.2018(AN)	<b>2. 3D Technology</b> Working with 3D - games Rigidbody - physics - User input and UI - Game Design 101: Balancing games - analyzing games - the MDA framework - CubeShip Game - Game Programming - 101 Working with Animations
5,6	4.8.2018(FN)	<b>3. Programming Games</b> Game Programming 102 Game Design 102: Choice, agency, aesthetics, and more UI Development - Unity Editor Intermediate Topics - Raycasting- Exam..
7,8	4.8.2018(AN)	<b>4. Game Design</b> Start on Game Design 1 - Game Programming 103 - 3D Characters: Animation & control Intermediate Game Production - Event Systems & Delegates.
9,10	10.8.2018(AN)	<b>5. Game Libraries</b> Game Design 1 wrap-up - Intermediate Game Production Topics - Game Programming 104 - Useful code libraries - Data Structures - Global Illumination



<b>11,12</b>	<b>11.8.2018(FN)</b>	<b>6.Game Tutorials</b> 2D Game Jam - Exam 2 - Game Design 103: Level Design & Tutorials.
<b>13,14</b>	<b>11.8.2018(AN)</b>	<b>7.Debugging Games</b> Start on Last major game design - 3D Models - Debugging - Introduction to Git - Editor extensions I/O.
<b>15,16</b>	<b>17.8.2018(AN)</b>	<b>8.Artificial Intelligence</b> Intro to AI – FSMs - Game design project.
<b>17,18</b>	<b>18.8.2018(FN)</b>	<b>9.Game Project</b> Procedural - generation Exam 3 - Game design project.
<b>19,20</b>	<b>18.8.2018(AN)</b>	<b>10.Programming Applications</b> Beyond Game Design: Programming - applications Algorithms & Trees - Game design project.
<b>21,22</b>	<b>24.8.2018(AN)</b>	<b>11.Design Patterns</b> Affordances & User - Experience Design Patterns - Final game design - presentations Exam 3
<b>23,24</b>	<b>25.8.2018(FN)</b>	<b>12.Web servers</b> Networking intro & JSON - Creating non-Unity C# - applications Web server basics.
<b>25,26</b>	<b>25.8.2018(AN)</b>	<b>13.Deployment of Servers</b> Deploying web servers - Creating a RESTful – interface
<b>27,28</b>	<b>31.8.2018(AN)</b>	<b>14.Database Connectivity</b> Connecting games to services Databases - Other networking topics
<b>29,30</b>	<b>01.9.2018(FN)</b>	<b>15.Advancement in GameDevelopment</b> Course Wrap-Up - Advanced programming topics (TBD)

  
COURSE COORDINATOR

  
HEAD OF THE DEPARTMENT

HEAD OF DEPARTMENT  
Department of Computer Science & Engg.,  
Bharath Institute of Higher Education & Research  
(Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
Chennai-600 073, INDIA





# **Bharath**

**INSTITUTE OF HIGHER EDUCATION AND RESEARCH**  
(Declared as Deemed-to-be University under section 3 of UGC Act 1956)

**CERTIFICATE COURSE ON GRADUATE DIPLOMA IN  
PROFESSIONAL GAME DEVELOPMENT**

**Date of Introduction of the Course: 02.08.2018**

**School of Computing**

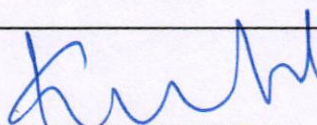
**Registered Students Name List**

<b>S.NO</b>	<b>REG.NO</b>	<b>NAME OF THE STUDENT</b>
1	U15CS001	ABHJEET
2	U15CS003	ABHISHEK KUMAR SINGH
3	U15CS004	Allu Sai Siva Priyanka Naidu
4	U15CS005	AMBIKE KUMAR SINGH
5	U15CS006	ANBUMANI S
6	U15CS007	ANJAR ALI
7	U15CS031	Ch.l.n.Avinash
8	U15CS032	Chandra kant Choudhary
9	U15CS034	CHIDIPOTHU PRATHYUSHA
10	U15CS035	Ch. V s s sravya
11	U15CS036	Ch.Prasanna kumar
12	U15CS706	AHENUO MERE
13	U15CS709	TINGSANGPENLA
14	U15CS071	John Param Jyothi Jyothula
15	U15CS073	K Thulasiram
16	U15CS075	Kadumu Mounika
17	U15CS076	Kaipu Pranay Reddy
18	U15CS077	Kalyanam Jaswanth Naidu



19	U15CS078	Kamble Nikhil Kumar
20	U15CS079	Kancharlapalli Lokeshwar Rao
21	U15CS125	Molapanti Siva Kalpana
22	U15CS126	Mooraboina Naresh
23	U15CS133	NALLURI AKHIL BABU
24	U15CS134	NAMBURI VIJAY KUMAR
25	U15CS135	NARENDULA NIREESHA
26	U15CS136	NARESH K
27	U15CS138	NEELA SAI KUMAR
28	U15CS139	NIKHIL KUMAR
29	U15CS140	NIRANJAN S
30	U15CS141	NITIN SINGH
31	U15CS142	NUKALA BHODANANDA CHARAN
32	U15CS143	OLIVER S
33	U15CS144	OMPRAKASH YADAV
34	U15CS145	PADMAVATY V
35	U15CS147	PALEPU SIVA MANIKANTA CHARI
36	U15CS148	PARTHIBAN S
37	U15CS710	JAYANTHI..S
38	U15CS502	DANIEL BRITTO
39	U15CS194	SHAIK SABIR
40	U15CS195	SHAIK YASMEEN
41	U15CS196	SHARYARAI.S
42	U15CS197	SHATRUGHAN SUHAN.S
43	U15CS199	SIRI GIRI HAREESH
44	U15CS200	SITARAJ SRIKANTH
45	U15CS201	SMITHA C.S

  
COURSE COORDINATOR

  
HEAD OF THE DEPARTMENT

HEAD OF DEPARTMENT  
Department of Computer Science & Engg.,  
Bharath Institute of Higher Education & Research  
(Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
Chennai-600 073. INDIA





# Bharath

**INSTITUTE OF HIGHER EDUCATION AND RESEARCH**  
(Declared as Deemed-to-be University under section 3 of UGC Act 1956)

## **CERTIFICATE COURSE ON GRADUATE DIPLOMA IN PROFESSIONAL GAME DEVELOPMENT**



*R. V. Raghavi*

**COURSE COORDINATOR**

*K. V. Raghavi*

**HEAD OF THE DEPARTMENT**

HEAD OF DEPARTMENT  
Department of Computer Science & Engg.,  
Bharath Institute of Higher Education & Research  
(Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
Chennai-600 073, INDIA





**Bharath**  
**INSTITUTE OF HIGHER EDUCATION AND RESEARCH**  
(Declared as Deemed-to-be University under section 3 of UGC Act 1956)

## **CERTIFICATE OF PARTICIPATION**

**This certificate is presented to**

**K.NARESH (REG NO:U15CS136)**

For actively participating in the value added course "GRADUATE DIPLOMA IN PROFESSIONAL GAME DEVELOPMENT" Conducted by School of Computing, BIHER from 02.08.2018 to 1.09.2018.

COURSE COORDINATORS

HEAD OF THE DEPARTMENT

DIRECTOR



# COURSE FEEDBACK FORM

Academic Year		2018-2019			
Term		Odd sem			
Course Number					
Course Title		Graduate Diploma in Professional Gamedevelopment			
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	✓	80-100	
2. Number of hours per week spent on the course (Other than lecture hours)									
0-2		2-4		4-6		6-8	✓	8-10	
3. Preparation for the course by the student:									
(i)	Have done part of this course earlier <span style="float: right;">yes</span>								
(ii)	Has adequate prior exposure to the prerequisites <span style="float: right;">yes</span>								
(iii)	Had to pickup relevant additional topics through concurrent study <span style="float: right;">yes</span>								
(iv)	Have no exposure to the background material <span style="float: right;">yes</span>								
4. The expectations for taking the course by the student are:									
(a)	Enhance by skill base in the area of specializations <span style="float: right;">yes</span>								
(b)	Get exposed to a relevant subject <span style="float: right;">yes</span>								
(c)	Curiosity <span style="float: right;">yes</span>								
(d)	Better Employment Opportunity <span style="float: right;">yes</span>								
(e)	Complete Course requirements <span style="float: right;">yes</span>								
(f)	To Improve CGPA <span style="float: right;">yes</span>								

**About the Instructor: Information on the Respondent: (Tick (✓) Appropriately)**

	A	B	C	D	E
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		E: Poor	
--------------	--	--------------	--	---------	---	-----------------	--	---------	--

**HEAD OF THE DEPARTMENT**

HEAD OF DEPARTMENT  
 Department of Computer Science & Engg.,  
 Bharath Institute of Higher Education & Research  
 (Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
 Chennai-600 073, INDIA



# COURSE FEEDBACK FORM

Academic Year		2018-2019			
Term		odd sem			
Course Number					
Course Title		Graduate Dip. in Professional Game Development			
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	✓	80-100	
------	--	-------	--	-------	--	-------	---	--------	--

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

0-2		2-4		4-6		6-8	✓	8-10	
-----	--	-----	--	-----	--	-----	---	------	--

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

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

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

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

**About the Instructor: Information on the Respondent: (Tick (✓) Appropriately)**

	A	B	C	D	E
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		E: Poor	
--------------	--	--------------	--	---------	--	-----------------	--	---------	--

**HEAD OF THE DEPARTMENT**

HEAD OF DEPARTMENT  
 Department of Computer Science & Engg.,  
 Bharathi Institute of Higher Education & Research  
 (Declared as Deemed to be University U/S 3 of UGC Act, 1956)  
 Chennai-600 073. INDIA