



Indra Ganesan

COLLEGE OF ENGINEERING

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai
Accredited by NAAC with 'B+' Grade, 2(f) & 12B Status Institution by UGC

IG Valley, Madurai Main Road, Manikandam, Tiruchirappalli - 620012

NAAC DOCUMENTS

QUALITY INDICATOR FRAME WORK

CRITERION – 1

CURRICULAR ASPECTS

SUBMITTED BY

IQAC

INTERNAL QUALITY ASSURANCE CELL

INDRA GANESAN COLLEGE OF ENGINEERING





DEPARTMENT OF ELECTRONICS AND COMMUNICATION ENGINEERING

ACADEMIC YEAR 2019-2020 / EVEN SEMESTER

1.2 Academic Flexibility (30)

1.2.1 Number of Certificate/Value added courses offered and online courses of MOOCs, SWAYAM, NPTEL etc. (where the students of the institution have enrolled and successfully completed during the last five years)

AND

1.2.2 Percentage of students enrolled in Certificate/ Value added courses and also completed online courses of MOOCs, SWAYAM, NPTEL etc. as against the total number of students during the last five years

VAC Title:	INTERNET OF THINGS				
Resource Person:	Mr.Tamil Vendhan Human Resource Manager Mr.Deepan Trainer Galwin Technologies Trichy				
Date of conduct from:	13.07.2020	To:	17.07.2020	Duration:	30 Hours
Organized Department:	ELECTRONICS AND COMMUNICATION ENGINEERING				
Participant Year:	ECE IV, III, II	Semester:	EVEN	No. of Students Registered:	72
Venue:	Online mode: https://meet.google.com/jym-woxq-voq				

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COLLEGE OF ENGINEERING
Madurai Main Road (NH-45B), Manikandam, Trichy-12.
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Department of Electronics and Communication Engineering

Academic Year 2019-2020–EVEN Semester

06.07.2020

DEPARTMENT CIRCULAR

Department of Electronics and Communication Engineering and IQAC of IGCE in association with Galwin Technology, Trichy, is going to organize Value Added Course for all Second, Third and Final year students on “**Internet of Things**” from 13.07.2020 to 17.07.2020. Certificates will be issued to the eligible participants at the end of the Course. This training is to be provided in online mode

Online mode : <https://meet.google.com/ivm-woxq-voo>

Resource Persons	1.Mr.Tamil Vendhan, Human Resource Manager Galwin Technologies , Trichy 2.Mr.Deepan, Trainer Galwin Technologies , Trichy
Venue	Online Mode

M. Bhuvanesh

HOD/ECE


PRINCIPAL

Cc:

- Principal office
- IQAC Co-Ordinator
- Class In charges - II, III & IV-Year
- II, III & IV-Year ECE Students
- Office File
- Notice Board


Dr. G. Balakrishnan, M.E., Ph.D.,
Principal

Indra Ganesan College of Engineering
IG Valley, Madurai Main Road
Manikandam, Trichy-620 012.



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Value Added Course

“Internet of Things”

SYLLABUS

S.NO	TOPIC COVERED	DURATION (in hours)	DATE
1	Introduction to Internet of Things (IoT)	3	13.07.2020
2	Applications of IoT in various business sectors	3	13.07.2020
3	IoT architecture - Software & Hardware platforms for IoT implementation	3	14.07.2020
4	Introduction to Cloud- MQTT Protocols Communication technique and API creation tools	3	14.07.2020
5	Data Visualization, Data Analytics, Plugins, Import & Export	3	15.07.2020
6	How to build an IoT product	3	15.07.2020
7	Analog Sensors & Interfacing	3	16.07.2020
8	Introduction to GPS communication & interfacing	3	16.07.2020
9	Hardware Explanation for Real Time Product Development	6	17.07.2020
10	Exam	1	17.07.2020
Total Hours (Excluding Exam)		30	-

R. D. D. S.
VAC Coordinator

M. B. S.
HOD/ECE

Dr. G. Balakrishnan, M.E., Ph.D.,
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Value Added Course

"Internet of Things"

STUDENTS PARTICIPATION LIST

S.NO	REG NO	STUDENTS NAME	YEAR/ BRANCH
1	811216106001	ABARNA T	IV/ECE
2	811216106002	AMSAVALLI S	IV/ECE
3	811216106003	ANUSHYA S	IV/ECE
4	811216106004	AROCKIA NIVETHA S	IV/ECE
5	811216106005	ASHEFA N	IV/ECE
6	811216106006	DHANALAKSHMI T	IV/ECE
7	811216106008	FEMINA BEGUM A	IV/ECE
8	811216106009	GAYATHRI J	IV/ECE
9	811216106011	KEERTHANA P	IV/ECE
10	811216106012	KEERTHANA S	IV/ECE
11	811216106013	KEERTHIKA D	IV/ECE
12	811216106014	LATHASRI S	IV/ECE
13	811216106015	MENAKA R	IV/ECE
14	811216106016	MITHRA P	IV/ECE
15	811216106017	MOHAN RAJ S	IV/ECE
16	811216106018	NILAVAR NISHA F	IV/ECE
17	811216106019	PAVITHRA P	IV/ECE
18	811216106020	PAVITHRA V	IV/ECE
19	811216106021	PRABHU A	IV/ECE
20	811216106022	PREETHA M	IV/ECE
21	811216106024	PREMA S	IV/ECE
22	811216106025	RAAHUL BN	IV/ECE
23	811216106026	RAMYA S	IV/ECE
24	811216106027	RUBAN RAJ S	IV/ECE
25	811216106028	SARANYA M	IV/ECE
26	811216106030	SARAVANAN S	IV/ECE
27	811216106031	SHANAKYA P	IV/ECE
28	811216106032	SORNA J	IV/ECE
29	811216106033	SUDHARSAN K	IV/ECE
30	811216106034	SUVATHI R	IV/ECE
31	811216106035	SWATHI S	IV/ECE
32	811216106036	UDAYA RANI K	IV/ECE
33	811216106037	VETTAI P	IV/ECE
34	811217106001	AISHWARIYA S	III / ECE

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S.NO	REG NO	STUDENTS NAME	YEAR/ BRANCH
35	811217106002	ANEESHA A	III / ECE
36	811217106003	DEEPIKA B	III / ECE
37	811217106004	DURGA D	III / ECE
38	811217106005	GANGADEVI M	III / ECE
39	811217106006	JANANI C	III / ECE
40	811217106009	KARTHICK K	III / ECE
41	811217106010	KOSIANANTH R	III / ECE
42	811217106011	LAKSHMI M	III / ECE
43	811217106012	MANIKANDAN M	III / ECE
44	811217106013	MEKALA DEVI S	III / ECE
45	811217106014	PANDIMEENA R	III / ECE
46	811217106016	PREETHI V	III / ECE
47	811217106017	RAASHITHA JANNATH A	III / ECE
48	811217106018	RANJITHA T	III / ECE
49	811217106019	RIYAS MOHAMMED K	III / ECE
50	811217106020	SAIMOULI N	III / ECE
51	811217106021	SARUMATHI A	III / ECE
52	811217106022	SHALINI M	III / ECE
53	811217106023	SIVA SANKARI M	III / ECE
54	811218106001	ABINAYA R	II / ECE
55	811218106002	AKILA K	II / ECE
56	811218106004	ARTHI M	II / ECE
57	811218106005	AZHAGU MEENA M	II / ECE
58	811218106006	DEVI K	II / ECE
59	811218106007	DHANALAKSHMI S	II / ECE
60	811218106008	HARI KRISHNAN S	II / ECE
61	811218106009	JANANI V	II / ECE
62	811218106010	JENIFER C	II / ECE
63	811218106011	JENIFER S	II / ECE
64	811218106012	KESAVAMURTHI M	II / ECE
65	811218106013	KIRUTHIKA S	II / ECE
66	811218106015	MARIA FRANCIS D	II / ECE
67	811218106016	RAGAVI A	II / ECE
68	811218106017	RUTHRAMOORTHY M	II / ECE
69	811218106018	SABARINATHAN K	II / ECE
70	811218106019	SARMILA M	II / ECE
71	811218106020	SUMATHI S	II / ECE
72	811218106021	HIVYA PRIYA R	II / ECE


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VAC Coordinator


HOD/ECE



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REPORT ON VALUE ADDED COURSE

Title:

"Internet of Things"

Resource Person:

Mr. Tamil Vendhan K.C, Human Resource Manager Galwin Technology, Trichy

Mr. Deepan, Trainer, Galwin Technology, Trichy

Date of conduct from :

13.07.2020

To:

17.07.2020

Duration:

30 Hours

Organized Department :

Electronics and Communication Engineering

Participant Year:

2,3,4

No. of Students Registered :

72

Venue:

Online Link: <https://meet.google.com/jym-woxq-voo>

Outcome of Value Added Course (VAC): At the end of the Course, Students can be able to

- Identify the Components that forms part of IoT Architecture
- Able to understand the application areas of IOT
- Able to realize the revolution of Internet in Mobile Devices, Cloud & Sensor Networks
- Able to understand building blocks of Internet of Things and characteristics
- Analyse the communication protocols for IoT.

Assessment Process

- Students, who are securing more than 70% on total score and secured more than 75% in attendance is eligible to receive the certificate for the VAC course conducted
- Total Score = $(0.5 * \text{Attendance in VAC out of 100 percentage} + 0.5 * \text{Test mark in VAC out of 100 marks})$

R. Dithy
VAC Coordinator

M. Bhuvanesh
HoD/ECE

Principal

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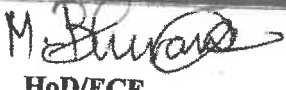



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Value Added Course

“Internet of Things”

SAMPLE PHOTOS OF VALUE ADDED COURSE			
Title:	“Internet of Things”		
Resource Person:	Mr. Tamil Vendhan K.C , Human Resource Manager Galwin Technology, Trichy	Mr. Deepan, Trainer, Galwin Technology, Trichy	
Date of conduct from :	13.07.2020	To: 17.07.2020	Duration: 30 Hours
Organized Department :	Electronics and Communication Engineering		
Participant Year:	2,3,4	No. of Students Registered :	72
Venue:	Online Link: https://meet.google.com/jym-woxq-vo0		
Sample Photos			
			
 VAC Coordinator	 HoD/ECE	 Principal	

Dr. G. Balakrishnan, M.E., Ph.D.

Principal

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Value Added Course

“Internet of Things”


Name of the Student:

Year/Sem:

AU Register Number:

MULTIPLE CHOICE QUESTIONS (25X1 = 25 Marks)

1. What is the full form of IoT?
a) Internet of Technology
b) Incorporate of Things
c) Internet of Things
d) Incorporate of Technology
2. What is IoT?
a) Network of physical objects embedded with sensors
b) Network of virtual objects
c) Network of objects in the ring structure
d) Network of sensors
3. Who coined the term “Internet of Things”
a) KevinAston
b) JohnWright
c) EdwardJamieson
d) GeorgeGarton
4. When was the actual term “Internet of Things” coined?
a) 1998
b) 1999
c) 2000
d) 2002
5. Which of the following is not an IoT device?
a) Table
b) Laptop
c) Arduino
d) Tablet
6. Which of the following is false about IoT devices?
a) IoT devices use the internet for collecting and sharing data
b) IoT devices need microcontrollers
c) IoT devices use wireless technology
d) IoT devices are completely safe
7. Which of the following is not an IoT platform?
a) Amazon Web Services
b) Microsoft Azure
c) Sales force
d) Flipkart


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"Internet of Things"

8. Which of the following is not an application of IoT?
a) BMP280
b) Smart home
c) Smartcity
d) Self-driven cars
9. Which of the following is not a fundamental component of an IoT system?
a) Sensors
b) Connectivity and data processing
c) User interface
d) Transformer
10. What is the full form of IIOT?
a) Index Internet of Things
b) Incorporate Internet of Things
c) Industrial Internet of Things
d) Intense Internet of Things
11. Which layer is used for wireless connection in IoT devices?
a) Application layer
b) Network layer
c) Data link layer
d) Transport layer
12. Which of the following is false about the IoT components?
a) A light sensor (photo resistor) is an analog sensor
b) A microphone is a digital sensor
c) A push button is a digital sensor
d) A keyboard is a digital sensor
13. Which of the following is used to captured at a from the physical world in IoT devices?
a) Sensors
b) Actuators
c) Microprocessors
d) Microcontrollers
14. Which of the following command is used to trigger the Amazon echo IOT device?
a) Hello
b) Suri
c) Alexa
d) Hey

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Value Added Course

“Internet of Things”

15. Which of the following is false about the MANET IoT network?
a) It is a self-configuring network
b) It has allow data rate
c) It doesn't have any encryption
d) Power is readily available for complex security
16. Which of the following is not a sensor in IoT?
a) BMP280
b) DHT11
c) Photo resistor
d) LED
17. Which of the following is not an actuator in IoT?
a) Stepper motor
b) A fan
c) An LED
d) Arduino
18. What is the use of PWM signals in IoT development boards?
a) They are used by sensors to have analog input
b) They are used by sensors to have digital input
c) They are used by actuators to have analog input
d) They are used by actuators to have digital input
19. Which of the following is used to reprogram a Boot loader in IoT devices?
a) VHDL programming
b) IDE
c) ICSE
d) MANET
20. Which of the following is true about Arduino IoT devices?
a) They are open-source software
b) They can only read analog inputs
c) They have their own operating systems
d) They don't have pre programmed firmware
e)
21. How many number of elements in the Open IoT Architecture?
a) 3 elements
b) 7 elements
c) 8 elements
d) 6 elements



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Value Added Course

“Internet of Things”

22. IoT-A stands for ____
- | | |
|-------------------------------|--------------------------------------|
| a) Internet of Things Area | b) Industrial of things Architecture |
| c) Internet of Things Address | d) Internet of Things Architecture |
23. Which of the following is an not a feature of the Raspberry PI modelB IoT device ?
- | | |
|------------------------------------|----------------------------------|
| a) It has 256 MBSDRAM | b) It has a single USB connector |
| c) It has its own operating system | d) It has an Ethernet port |
| | e) |
24. Which of the following processor is used in the RaspberryPI 3 IoT device?
- | | |
|---------------------|--------------------|
| a) Broadcom BCM2711 | b) BroadcomBCM2837 |
| c) Broadcom BCM2838 | d) Intel8085 |
25. Which library is used to access I2C in Arduino IoT devices?
- | | |
|-----------|----------------|
| a) EEPROM | b) Wire |
| c) DHT11 | d) ArduinoJson |


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Value Added Course

“Internet of Things”

Answer Key

1	c	6	d	11	c	16	d	21	b
2	a	7	d	12	b	17	d	22	d
3	a	8	a	13	a	18	c	23	a
4	b	9	d	14	c	19	c	24	b
5	a	10	c	15	d	20	a	25	b

R. D. H.
VAC Coordinator

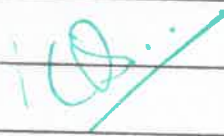
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value Added course
"Internet of things"

Name of the student :- Kozhambathi M year / sem :- II /
AU Register Number :- 811818106018

- 1) c ✓ 23) b ✗
2) b ✗ 24) b ✓
3) a ✓ 25) b ✓
4) b ✓
5) a ✓
6) d ✓
7) c ✗
8) a ✓
9) d ✓
10) c ✓
11) c ✓
12) a ✗
13) a ✓
14) c ✓
15) d ✓
16) d ✓
17) d ✓
18) c ✓
19) c ✓
20) a ✓
21) b ✓
22) d ✓

21
25


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value Added Course


"Internet of things"

Name of the student: Riyaz mohammed.k year semi-III/

AU Register Number: 811217106019

- 1) c ✓
- 2) a ✓
- 3) b ✗
- 4) b ✓
- 5) a ✓
- 6) d ✓
- 7) d ✓
- 8) a ✓
- 9) c ✗
- 10) c ✓
- 11) c ✓
- 12) b ✓
- 13) a ✓
- 14) c ✓
- 15) b ✗
- 16) d ✓
- 17) d ✓
- 18) a ✗
- 19) c ✓
- 20) a ✓
- 21) b ✓
- 22) d ✓
- 23) a ✓
- 24) a ✗
- 25) b ✓

20
25


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Department of Electronics and Communication Engineering

Academic Year 2019-2020 – Even Semester

VALUE ADDED COURSE ASSESMENT SHEET

Internet of Things

S.NO	REG NO	STUDENTS NAME	YEAR/ BRANCH	Attendance Details		VAC-MCQ TEST		OVERALL MARK(100) (50% of A + 50% of B)
				No. of Session Attended	Attendance Mark(100) (A)	No of Correct Answers	MCQ Mark(100) (B)	
1	811216106001	ABARNA T	IV/ECE	30	100	20	80	90
2	811216106002	AMSAVALLI S	IV/ECE	27	90	19	76	83
3	811216106003	ANUSHYA S	IV/ECE	27	90	19	76	83
4	811216106004	AROCKIA NIVETHA S	IV/ECE	30	100	20	80	90
5	811216106005	ASHEFA N	IV/ECE	27	90	19	76	83
6	811216106006	DHANALAKSHMI T	IV/ECE	27	90	19	76	83
7	811216106008	FEMINA BEGUM A	IV/ECE	30	100	20	80	90
8	811216106009	GAYATHRI J	IV/ECE	27	90	19	76	83
9	811216106011	KFERTHANA P	IV/ECE	27	90	19	76	83
10	811216106012	KFERTHANA S	IV/ECE	27	90	19	76	83
11	811216106013	KFERTHIKA D	IV/ECE	27	90	21	84	87


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				No. of Session Attended	Attendance Mark(100) (A)	No of Correct Answers	MCQ Mark(100) (B)	
12	811216106014	LATHASRI S	IV/ECE	27	90	20	80	85
13	811216106015	MENAKA R	IV/ECE	30	100	21	84	92
14	811216106016	MITHRA P	IV/ECE	30	100	19	76	88
15	811216106017	MOHAN RAJ S	IV/ECE	27	90	19	76	83
16	811216106018	NILAVAR NISHA F	IV/ECE	24	80	20	80	80
17	811216106019	PAVITHRA P	IV/ECE	24	80	21	84	82
18	811216106020	PAVITHRA V	IV/ECE	27	90	22	88	89
19	811216106021	PRABHU A	IV/ECE	30	100	20	80	90
20	811216106022	PREETHA M	IV/ECE	27	90	21	84	87
21	811216106024	PREMA S	IV/ECE	24	80	20	80	80
22	811216106025	RAAHUL BN	IV/ECE	27	90	21	84	87
23	811216106026	RAMYA S	IV/ECE	30	100	20	80	90
24	811216106027	RUBAN RAJ S	IV/ECE	30	100	16	64	82
25	811216106028	SARANYA M	IV/ECE	30	100	19	76	88
26	811216106030	SARAVANAN S	IV/ECE	30	100	21	84	92
27	811216106031	SHANAKYA P	IV/ECE	27	90	19	76	83
28	811216106032	SORNA J	IV/ECE	27	90	19	76	83
29	811216106033	SUDHARSAN K	IV/ECE	27	90	19	76	83
30	811216106034	SUVATHI R	IV/ECE	27	90	19	76	83


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				No. of Session Attended	Attendance Mark(100) (A)	No of Correct Answers	MCQ Mark(100) (B)	
31	811216106035	SWATHI S	IV/ECE	30	100	19	76	88
32	811216106036	UDAYA RANI K	IV/ECE	27	90	19	76	83
33	811216106037	VETTAI P	IV / ECE	24	80	21	84	82
34	811217106001	AISHWARIYA S	III /ECE	27	90	20	80	85
35	811217106002	ANEESHA A	III / ECE	30	100	21	84	92
36	811217106003	DEEPIKA B	III / ECE	27	90	19	76	83
37	811217106004	DURGA D	III / ECE	30	100	19	76	88
38	811217106005	GANGADEVI M	III / ECE	30	100	19	76	88
39	811217106006	JANANI C	III / ECE	30	100	21	84	92
40	811217106009	KARTHICK K	III / ECE	27	90	21	84	87
41	811217106010	KOSIANANTH R	III / ECE	24	80	20	80	80
42	811217106011	LAKSHMI M	III / ECE	27	90	21	84	87
43	811217106012	MANIKANDAN M	III / ECE	30	100	20	80	90
44	811217106013	MEKALA DEVI S	III / ECE	27	90	19	76	83
45	811217106014	PANDIMEENA R	III / ECE	30	100	19	76	88
46	811217106016	PREETHI V	III / ECE	30	100	21	84	92
47	811217106017	RAASHITHA JANNATH A	III / ECE	27	90	19	76	83
48	811217106018	RANJITHA T	III / ECE	24	80	20	80	80
49	811217106019	RIYAS MOHAMMED K	III / ECE	24	80	20	80	80

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S.NO	REG NO	STUDENTS NAME	YEAR/ BRANCH	Attendance Details		VAC-MCQ TEST		OVERALL MARK(100) (50% of A + 50% of B)
				No. of Session Attended	Attendance Mark(100) (A)	No of Correct Answers	MCQ Mark(100) (B)	
50	811217106020	SAIMOULI N	III / ECE	27	90	19	76	83
51	811217106021	SARUMATHI A	III / ECE	30	100	20	80	90
52	811217106022	SHALINI M	III / ECE	27	90	19	76	83
53	811217106023	SIVA SANKARI M	III / ECE	24	80	21	84	82
54	811218106001	ABINAYA R	II / ECE	27	90	20	80	85
55	811218106002	AKILA K	II / ECE	30	100	21	84	92
56	811218106004	ARTHI M	II/ECE	30	100	19	76	88
57	811218106005	AZHAGU MEENA M	II/ECE	30	100	20	80	90
58	811218106006	DEVI K	II/ECE	30	100	21	84	92
59	811218106007	DHANALAKSHMI S	II/ECE	27	90	21	84	87
60	811218106008	HARI KRISHNAN S	II/ECE	24	80	20	80	80
61	811218106009	JANANI V	II / ECE	27	90	20	80	85
62	811218106010	JENIFER C	II / ECE	30	100	19	76	88
63	811218106011	JENIFER S	II / ECE	30	100	20	80	90
64	811218106012	KESAVAMURTHI M	II / ECE	30	100	21	84	92
65	811218106013	KIRUTHIKA S	II/ECE	27	90	21	84	87
66	811218106015	MARIA FRANCIS D	II/ECE	24	80	20	80	80
67	811218106016	RAGAVI A	II/ECE	27	90	21	84	87
68	811218106017	RUTHRAMOORTHY M	II/ECE	30	100	20	80	90
69	811218106018	SABARINATHAN K	II/ECE	27	90	19	76	83
70	811218106019	SARMILA M	II/ECE	30	100	19	76	88
71	811218106020	SUMATHI S	II/ECE	30	100	21	84	92
72	811218106021	THIVYA PRIYA R	II/ECE	27	90	19	76	83

VAC Coordinator

HOD/ECE



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