

MANAV RACHNA INTERNATIONAL UNIVERSITY

Metric 1.3.2(Q_nm)

Number of value-added courses for imparting transferable and life skills offered during the year

AY 2016-17

| Course Name | Course Code | Duration (Hours) | Number of students enrolled | Number of students passed |
|--------------------------------|-------------|---------------------|--------------------------------|---------------------------|
| Automotive safety system | AU-VA-003 | 32 | 31 | 31 |





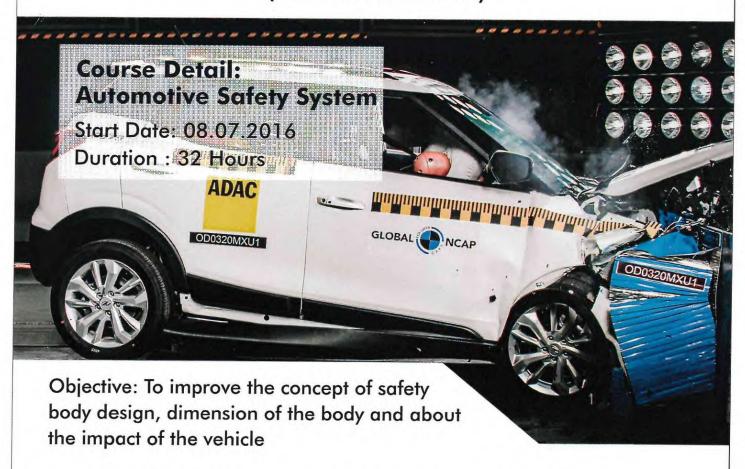
MANAV RACHNA INTERNATIONAL UNIVERSITY FARIDABAD

(Deemed to be University under section 3 of the UGC Act 1956)

Faculty of Engineering and Technology

DEPARTMENT OF AUTOMOBILE ENGINEERING

Value Added Course Details (ODD SEM 2016-17)



Key highlights: Safety Concepts, Safety Equipments, Comfort and Convenience System

Resource person: Mr. Nitin Waghmare

Registration Open from: 14.06.2016
Contact details: Sunny Bhatia, Assistant Professor





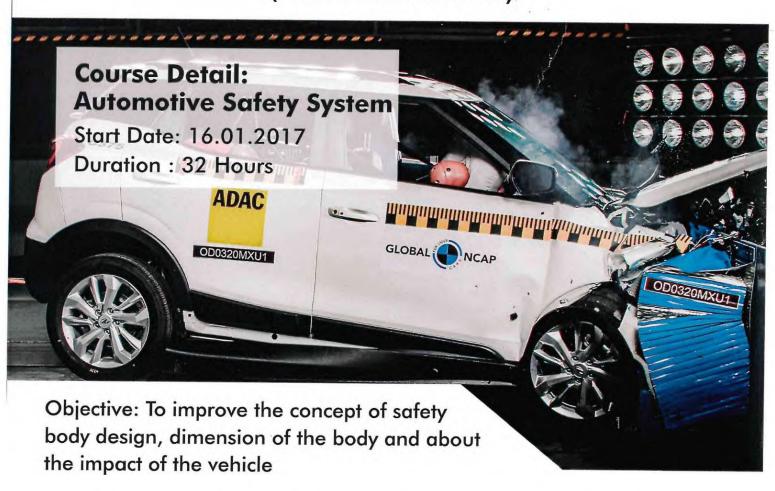
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DEPARTMENT OF AUTOMOBILE ENGINEERING

Value Added Course Details (EVEN SEM 2016-17)



Key highlights: Safety Concepts, Safety Equipments, Comfort and Convenience System

Resource person: Mr. Nitin Waghmare

Registration Open from: 14.12.2016

Contact details: Sunny Bhatia, Assistant Professor

Manav Rachna International University

(Deemed to be University under section 3 of the UGC Act 1956)
Faculty of Engineering and Technology
Department of Automobile Engineering

SYLLABUS

AUTOMOTIVE SAFETY SYSTEM (Course Code: AU.VA003)

Course: Value Added

Course Coordinator: Nitin Waghmare

Periods/week: 32 hours

Course Outcomes:

The student will be able to Identify and locate the most important parts of a vehicle.

- The student will be familiar in various systems that enhance vehicle safety, passenger Comfort, recent technologies in automobile field etc.
- The students able to describe the purpose of the fundamental automotive system in a vehicle.
- The students able to analyze the various safety equipments in an automobile vehicle.
- The student able to analyze how the vehicle's structure absorbs impact in a crash.
- The students able to create and design the comfort system and essential system in a vehicle

Syllabus:

Introduction: Design of the body for safety, energy equation, deceleration of vehicle inside passenger compartment, deceleration on impact with stationary and movable obstacle, safety sandwich construction. Safety Concepts: driving safety, conditional safety, perceptibility safety, exterior safety, interior safety, deformation behavior of vehicle body, speed and acceleration characteristics of passenger compartment on impact. Safety Equipments: regulations, automatic seat belt tightener system, collapsible steering column, tilt able steering wheel, electronic system for activating air bags, bumper design for safety. Collision Warning and Avoidance: Collision warning system, causes of rear end collision, frontal and rear object detection, object detection system with braking system Interactions. Comfort and Convenience System: Steering and mirror adjustment, central locking system, Garage door opening system, tyre pressure control system, rain sensor system.

Reference

 Ronald.K.Jurgen, "Automotive Electronics Handbook", Second Edition, McGraw-Hill Inc., 1999.

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MANAV RACHNA INTERNATIONAL UNIVERSITY FACULTY OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF AUTOMOBILE ENGINERING SUBJECTS NAME: AUTOMOTIVE SAFETY SUBJECT CODE: AU-VA-003

| NO I | ROLL NO. | STUDENT NAME | 16.01.2017 | | 16.01.2017 | 16.01.2017 | 16.01.2017 | 17.01.2017 | 17.01.2017 | 17.01.2017 | 17.01.2017 | 18.01.2017 | 18.01.2017 | 18.01.2017 | 18.01.2017 | 19.01.2017 | 19.01.2017 | 19.01.2017 | 19.01.2017 | 20.01.2017 | 20.01.2017 | 20.01.2017 | 20.01.2017 | 21.01.2017 | 21.01.2017 | 21.01.2017 | 21.01.2017 | 23.01.2017 | 23.01.2017 | 23.01.2017 | 23.01.2017 | 24.01.2017 | 24.01.2017 | 24.01.2017 | 24.01.2017 | E % | 6 |
|-------|-------------------|------------------------|------------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|---------------|
| - | | | | | 4hrs | | | | 4hr | s | | | 4hı | | | | | | - | 8 | | | 77 | 12 | | 7.27 | 12 | 2 | 23 | 23. | 13. | 7. | 4 | 24. | 24.0 | at at | 6 ttendanc |
| 1 1 | /14/FET/BME/1/021 | ANKIT | ^ | | | 1 | | T | | | | | | | | | 4h | TS T | | T | 4hr | 's | - | T | 4hr | s | - | T | 4h | rs | | | 4hrs | s | + | 32 | |
| 2 | /14/FET/BME/1/022 | ABHISHEK VASHISHT | A | A | р | р | p | A | F | | | p | p I |) I | p j | D F | p | р |) r | F |) p |) p | p | p | р |) A | 1 | 1 | р | р | р | A | 4 p | р | + | 26 | 86.6 |
| 3 1 | /14/FET/BAU/1/001 | HIMANSHU SETHI | р | р | p | p | p | p | p | p | | | p / | | 0 1 |) p | | p / | | A | \ F |) p | p | p | p | р | F | - 1 | p | р | р | р / | Др | р | + | 22 | 73.33 |
| 4 1 | /14/FET/BAU/1/003 | SANJEEV | р | А | р | р | p | A | A | p | | , | p | | 1 | | | p F | | P | A | | | p | p | р | A | F | | р | р | A F |) p | р | + | 28 | 93.33 |
| 5 1/ | /14/FET/BAU/1/006 | AMIT YADAV | р | p | p | A | A | p | p | A | | | | | | | | | | | | p | p | p | p | Р | p | p | 1 | A | Α | p p | р | р | + | 23 | 76.67 |
| 6.1/ | /14/FET/BAU/1/011 | KAPIL YADAV | р | р | р | р | p | p | p | p | | , , | , A | _ P | | | | D A | | р | p | р | р | A | p | p | p | P | , F | р | р | р | р | р | - | 26 | 86.67 |
| 7 15 | 5/FET/AU(L)/1001 | SANGRAM BISWAS | A | A | p | p | p | p | A | A | | | | 0 | , p | | - |) p | P | p | р | р | p | р | р | р | р | р | , p | 9 | р |) p | р | p. | + | 30 | 100.00 |
| 8 1/ | /14/FET/BAU/2/003 | MOHAMMED TANZEEL | 0 | р | p | A | р | p | p | р | A | A | p | A | A | | | , p | P | P | A | р | A | P | A | р | p | р | P | , | A | рА | р | р | + | 23 | 76.67 |
| 9 1/ | /14/FET/BAU/2/005 | TANMAY GOYAL p |) | р | р | p | р | A | A | р | A | A | A | р | p | p | P | p | P | p | A | p | Р | p | p | р | A | р | A | 1 | р |) p | p | р | 1 | 24 | 80.00 |
| 10 1/ | 14/FET/BAU/2/007 | HARIT BATRA p |) | р | A | A | р | р | р | р | р | A | р | p | p | p | A | D | p | n | 4 | , p | A | P | , p | Р | P | p | р | | p p | p | p | р | + | 26 | 86.67 |
| 11 1/ | 14/FET/BAU/2/009 | VASU DHINGRA A | | р | р | p | р | p | A | А | p | р | р | p | p | A | р | p | A | D | n | 2 | 2 | P | A | р | p | A | p | | р | A | p | p | + | 23 | 76.67 |
| 2 1/1 | 14/FET/BAU/2/011 | RAJAN NIRWAL p | | р | Α | A | р | p | p | p | p | p | D | A | A | | - | p | | | | | P | P | P | p | P | p | р | F | Р | р | р | р | + | 27 | 90,009 |
| 3 14 | /FET/M(L)/2001 | ATUL DHIMAN | | р | A | A | p | A | A | n | Δ. | | | | | - | | P | р | p | P | р | p | р | р | р | p | A | A | F | рр | р | р | р | + 2 | 26 | 86.679 |
| 4 14 | /FET/M(L)/2008 | ROHIT BORAH | | р | р | D | p | p | | p | | | | P | P | Р | P | p | р | A | р | p | р | р | р | р | р | A | A | F | о р | р | р | р | - 2 | 23 | 76.679 |
| 5 1/1 | 13/FET/BME/1/065 | ROHAN GOEL | | A | A | p | | ^ | ^ | | - | p | ρ | P | p | p | A | p | р | р | р | A | р | р | p | р | р | р | р | p | A | A | р | р | 1 2 | 28 | 93.33% |
| 6 1/1 | 13/FET/BME/1/066 | HIMANSHU TOLAMBIA A | | p | D | D | A | - | - | p | p | p | р | A | A | р | р | р | р | р | р | р | р | A | p | р | р | р | р | p | р | р | р | р | 2 | 25 | 83.33% |
| 1/1 | 4/FET/BCI/1/018 | HARSH VARDHAN | | Ą | A | p | n | p | 2 | P | p | P | p | р | p | р | A | p | р | A | р | р | A | A | р | A | р | Α | р | р | р | р | р | р | 2 | 24 | 80.00% |
| 1/1 | 4/FET/BCI/1/019 | MOHIT ATRI | | , | p | p | 0 | Δ | Α | р | р | A | A | p | р | р | p | p | р | р | р | р | р | р | р | р | p | A | Α | р | р | р | р | р | 2 | 26 | 86.67% |
| 9 1/1 | 4/FET/BCI/1/020 | KULDEEP SINGH | | | ^ | ^ | | | A | p | p | р | р | р | p | р | р | р | A | р | р | р | A | p | р | A | р | р | A | р | р | A | р | р | 2 | 5 | 83.33% |

Course Coordintor

Signature





MANAV RACHNA INTERNATIONAL UNIVERSITY FACULTY OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF AUTOMOBILE ENGINERING SUBJECTS NAME: AUTOMOTIVE SAFETY

SUBJECT CODE: AU-VA-003

| NO | ROLL NO. | STUDENT NAME | | | 08.07.2016 | 09.07.2016 | 09.07.2016 | 09.07.2016 | 11.07.2016 | 11.07.2016 | 11.07.2016 | 12.07.2016 | 12.07.2016 | 12.07.2016 | 13.07.2016 | 13.07.2016 | 13.07.2016 | 14.07.2016 | 14.07.2016 | 14.07.2016 | 15.07.2016 | 15.07.2016 | 15.07.2016 | 16.07.2016 | 16.07.2016 | 16.07.2016 | 18.07.2016 | 18.07.2016 | 18.07.2016 | 19.07.2016 | 19.07.2016 | 19.07.2016 | 20.07.2016 | 20.07.2016 | 20.07.2016 | Total | % attendance |
|------|--|-------------------|---|------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|-----------------|
| | | | 1 | 2hrs | + | 31 | hrs | _ | - : | 3hrs | | - | 3hrs | | ; | 3hrs | | | 3hrs | | 32 | |
| 1 | 1/13/FET/BEE/2/006 | SAMI AKHTAR | P | P | P | A | P | , | P | P | P | , | 4 | 4 | P P | , | P | , | p | P | D | P | P | P | P | | | | | | Jiiis | | | Sill's | | 32 | |
| 2 | 1/13/FET/BEE/2/013 | NIKHIL KHERA | A | P | P | P | P | , | A | P | P | | | , | 1 | | | | | | | | | | P | Р | A | Р | Р | Р | Р | Р | P. | Р | Р | 28 | 93.33 |
| 3 | 14/FCH/BCOM(H)/077 | SAKSHI GULATI | | | | | | | | | | 1 | | | A P | - | P | - | Α | Р | Р | Р | Р | Р | P | Р | Р | Р | Р | Р | Р | А | Р | Р | Р | 27 | 90.00 |
| | THE STATE OF THE S | SAKSHI GOLATI | P | P | A | A | A | 1 | PF | P | P P | F |) F |) | P | F |) | 1 | Р | Р | Α | Ρ. | À | Р | P | Р | Р | А | A | P | P | Р | P | P | P | 24 | 80.00 |
| 4 | 1/13/FET/BCS/1/071 | AAKRITI SINGLA | P | Р | P | P | P | F | PF | , , | P A | | P | F | P | P | , , | , | , | p | P | P | P | P | P | A | | | | | | | | | | 24 | 80.00 |
| 5 | 1/13/FET/BCS/1/072 | REVAANT SYAL | P | P | P | P | P | | A P | , | AA | P | | F | A | P | , , | | | | | | | | - | A | A | Р | Р | Р | P | Р | P | P | > | 28 | 93.33 |
| 6 | 1/13/FET/BCS/1/073 | CHARU KHANIJO | P | P | A | P | P | | | | 1 | | T | 1 | | | 1 | 1 | , | Р | P | P | Р | P | Р | Р | P. | Р | Р | Р | Р | P | P | 2 | <u>}</u> | 26 | 86.67 |
| | | MOHAMMAD | | 1 | 1 | - | | T A | P | 1 | PP | P | A | P | P | P | P | F | , | A | Р | Р | A | A | Α | Р | Р | A | Р | A | A | P | - | PF | , | 22 | 73.33 |
| 1 | 14/FCH/BCOM(H)/055 | RAISUZZAMAN | Α | P | P | P | P | P | P | F | P | P | A | A | A | P | P | P | , | P I | P | P | A | P | Р | P | P | P | , | P | , | A | , | | | | |
| 8 | 14/FCH/BCOM(H)/056 | MOHIT BHADANA | Р | Р | P | P | A | P | A | P | P | P | P | P | P | P | P | | | A | | D | p | | | | | | | | | 1 | 1 | - | | 27 | 90.00% |
| 9 | 14/FCH/BCOM(H)/057 | MOUIT HANG | | | | | | | | | | | | | | 1 | Ť | 1 | - | | | - | 7 | P | Р | Р | Р | Р / | 4 | A | 9 | PF | P | P | + | 27 | 90.00% |
| | W CIBBCON(II)/037 | MOHIT HANS | P | P | A | P | P | P | P | P | P | P | P | P | P | Α | A | P | F | P | , | P | , | P | A | A | P | P | , | PF | , | PP | P | , p | | 27 | 90.00% |
| 10 | 14/FCH/BCOM(H)/058 | MONALISA DAS | A | P | P | P | P | A | A | P | P | A | P | P | P | P | P | P | | | | | | | | | | | | | | | | T | | | 30.00% |
| 11 1 | | PRATEEK CHADDA | P | A | P | P | P | P | P | P | P | | D | P | | 1 | Ť | 1 | ľ | | | P | , | 2 | P | P | P | > F | , , | PP | , | A P | P | P | + | 25 | 83.33% |
| 12 | A/COLUDGO VIII | | | | | | Ť | 1 | 1 | 1 | | P | P | P | P | A | A | P | P | , b | - | P | F | , , | A F | , | P | P | F | P | F | A | P | P | | 27 | 90.00% |
| 12 1 | 4/FCH/BCOM(H)/066 | PRIYA GOYAL | Р | P | Р | P | P | P | P | Α | A | P | Р | Р | P | P | P | P | P | P | | , , | | , | | , | | | | A | | P | P | P | | 29 | |







MANAV RACHNA INTERNATIONAL UNIVERSITY

(Faridabad, Haryana)
(Deemed to be University under section 3 of the UGC act, 1956)
Faculty of Engineering and Technology
Department of Automobile Engineering
Academic Year: 2016-17

| It is to certify that | | Roll No: | student |
|---------------------------|-----------------------------|----------------|-----------------|
| of | programn | ne of MRIU h | as successfully |
| completed the certificate | course / value-added course | e titled "Auto | omotive safety |
| system" course code "AU-V | A-003" conducted by the Dep | partment fror | m 08.07.2016 to |
| 20.07.2016 | | | |
| | | | |
| Course Coordinator | Date: 08.08.2016 | Head c | of Department |



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| of | programn | ne of MRIU h | as successfully |
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| system" course code "AU-\ | /A-003" conducted by the De | partment fro | m 16.01.2017 to |
| 24.01.2017. | | | |
| Course Coordinator | Date: 10.02.2017 | Head o | of Department |



Metric 1.3.2(Q_nm)

Number of value-added courses for imparting transferable and life skills offered during the year

AY 2017-18

| Course Name | Course Code | Duration (Hours) | Number of students enrolled | Number of students passed |
|--------------------------|----------------|---------------------|--------------------------------------|------------------------------------|
| Automotive safety system | AU-VA- 003 | 32 | 34 | 32 |





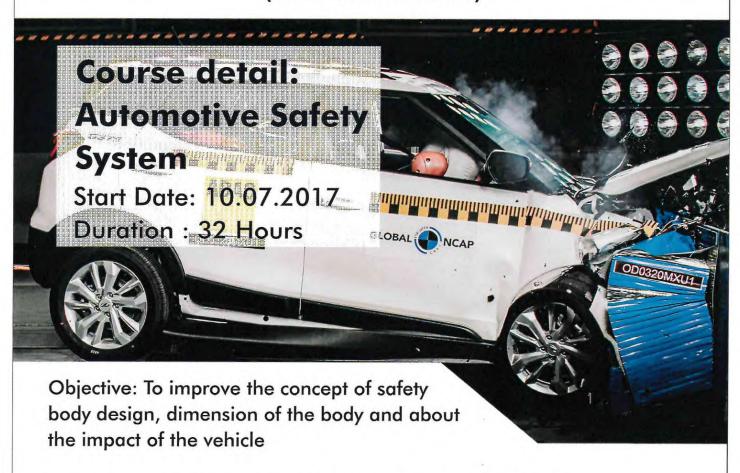
MANAV RACHNA INTERNATIONAL UNIVERSITY FARIDABAD

(Deemed to be University under section 3 of the UGC Act 1956)

Faculty of Engineering and Technology

DEPARTMENT OF AUTOMOBILE ENGINEERING

Value Added Course Details (ODD SEM 2017-18)



Key highlights: Safety Concepts, Safety Equipments, Comfort and Convenience System

Resource person: Mr. Nitin Waghmare

Registration Open from: 16.06.2017

Contact details: Sunny Bhatia, Assistant Professor



Manav Rachna International University

(Deemed to be University under section 3 of the UGC Act 1956)
Faculty of Engineering and Technology
Department of Automobile Engineering

SYLLABUS

AUTOMOTIVE SAFETY SYSTEM (Course Code: AU.VA003)

Course: Value Added

Course Coordinator: Nitin Waghmare

Periods/week: 32 hours

Course Outcomes:

The student will be able to Identify and locate the most important parts of a vehicle.

- The student will be familiar in various systems that enhance vehicle safety, passenger Comfort, recent technologies in automobile field etc.
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- The students able to analyze the various safety equipments in an automobile vehicle.
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H. O. D

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MANAV RACHNA INTERNATIONAL UNIVERSITY FACULTY OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF AUTOMOBILE ENGINERING SUBJECTS NAME: AUTOMOTIVE SAFETY SUBJECT CODE: AU-VA-003

| ROLL NO | STUDENT NAME | F100 T0 01 | | | 10.07.2017 | 10.07.2017 | 11,07,2017 | 11.07.2017 | 11.07,2017 | 11.07,2017 | 12,07,2017 | 12.07.2017 | 12,07,2017 | 12.07,2017 | 13.07.2017 | 13.07.2017 | 13.07.2017 | 13.07.2017 | 14.07.2017 | 14.07.2017 | 14.07.2017 | 14.07.2017 | 15.07.2017 | 15.07.2017 | 15.07.2017 | 15,07,2017 | 17,07,2017 | 17.07.2017 | 17.07.2017 | 17.07.2017 | 18,07,2017 | 18.07.2017 | 8.07.2017 | 8.07.2017 | Total | % Attendance |
|--------------------|---|--|---|--|--|--|--|--|--|--|--|--|--|--|--|---|--|--|--|--|--|--|---|--|---|--|--|--|--|---|---|--|---|--|--|--|
| 17/FET/ALI/L V004 | ROHIT GUPTA | | T | 4hrs | | + | T | 4hrs | T | - | - | 4hrs | - | - | | 4hr | 's | | | 4hi | rs | | | 4hr | s | | | 4h | rs | | | 41 | ire | | | |
| 17/FET/AU(L)/005 | SHAGUN SHARMA | P | A | A | P | P | Р | A | A | P | P | P | A | A | P | P | , | P | , , | | P | P | PF | P | Р | - 1 | P | , | Р | P | P | A | P | P | 25 | |
| 17/FET/AU(L)/006 | UPADHAYAY | P | A | A | P | P | A | A | P | P | P | P | P | P | P | P | 1 | 1 | V. / | F | 2 | P F | P | P | Р | F |) A | | A 1 | 9 | Р | Р | Р | Р | 28 | |
| 1/15/FET/BAU/1/018 | GAUTAM | Р | P | p | P | P | 1 | A | - | 0 | ^ | | P | P | P | Р | - 1 |) P | F |) F | P | P F |) P | P | Р | F |) P | | P | , | Р | P | Р | Р | 26 | 86.7 |
| 1/15/FET/BAU/1/020 | MOHIT YADAV | P | P | P | P | P | - | 25 | P | P | A | A | A | A | A | A | 3 | ¥ A | 1 | \ A | X // | A / | A | À | A | 1 | A | | A. / | | A | P | Р | P | 10 | 33.3 |
| 16/FET/AU(L)/1002 | GURPREET ARORA | p | A | | D | 0 | - | - | - | P | P | P | A | A | P | P | F | P | F | P |) F | P | P | . b | P | P | P | | P | , | P | 2 | P | Р | 30 | 100.0 |
| 1/15/FET/BAE/1/007 | JITENDRA SINGH | D | D | 0 | - | - | P | P | - | P . | P | P | P | P | P | P | P | A | A | P | P | A | A | P | P | P | Р | 1 | p P | , | P | 9 | P | Р | 26 | 86.7 |
| 1/15/FET/BAE/1/008 | ABHISHEK PRATAP SINGH | A | Δ. | P | P | A | Α. | P | P | A | Α | P | P | A | A | P | P | P | P | Р | P | P | P | P | Р | P | P | - | , P | | PF | 2 | P | p | 26 | 86.7 |
| 1/15/FET/BCI/1/032 | HEISNAM BOSKY DEVI | Р | P | P | 0 | À | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | Р | P | p | P | P | P | F | P | | PF | , , | p F | 9 | 30 | 100.0 |
| 1/15/FET/BCI/1/034 | SAHIL BANSAL | Р | p | P | D | 0 | 0 | P | | P | P | P | P | P | P | P | P | P | P | P | P | Р | P | Р | A | A | P | F | P | | P | , , | PF | 3 | 28 | 93.3 |
| 1/16/FET/BME/1/030 | ANKIT | P | P | D | n | 0 | 1 | A | A | P | P | Α | A | P | P | Р | P | P | P | P | P | A | Α | Р | Р | P | P | P | P | F | o A | F | p p | , | 25 | 83.3 |
| 1/16/FET/BME/1/035 | PRANKUL | р | P | P | 0 | P | P | P | P | P | P | P | P | A | A | A | A | A | A | A | A | A | À | A | A | A | de | À | A | 1 | A A | . / | A A | | 12 | 40.0 |
| 1/16/FET/BME/1/042 | KUNWAR | P | P | A | | P | P | P | A | A | P | P | P | P | P | A | A | P | P | A | A | P | P | P | P | P | Р | p | P | F | P | F | , p | | 26 | 86.7 |
| 1/16/FET/BME/1/045 | SHANU | | | - | 7% | 10 | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | D | | ١. | P | | | | | 7 | | |
| | 17/FET/AU(L)/004 17/FET/AU(L)/005 17/FET/AU(L)/006 1/15/FET/BAU/1/018 1/15/FET/BAU/1/020 16/FET/AU(L)/1002 1/15/FET/BAE/1/007 1/15/FET/BAE/1/032 1/15/FET/BCI/1/034 1/16/FET/BME/1/030 1/16/FET/BME/1/035 | 17/FET/AU(L)/004 ROHIT GUPTA 17/FET/AU(L)/005 SHAGUN SHARMA HIMANSHU UPADHAYAY DIBYA MANI GAUTAM 1/15/FET/BAU/1/018 MOHIT YADAV 16/FET/AU(L)/1002 GURPREET ARORA 1/15/FET/BAE/1/007 JITENDRA SINGH 1/15/FET/BAE/1/008 ABHISHEK PRATAP SINGH 1/15/FET/BCI/1/032 DEVI 1/15/FET/BCI/1/034 SAHIL BANSAL 1/16/FET/BME/1/030 ANKIT 1/16/FET/BME/1/035 PRANKUL | 17/FET/AU(L)/004 ROHIT GUPTA P 17/FET/AU(L)/005 SHAGUN SHARMA P 17/FET/AU(L)/006 HIMANSHU UPADHAYAY P 1/15/FET/BAU/1/018 GAUTAM P 1/15/FET/BAU/1/020 MOHIT YADAV P 16/FET/AU(L)/1002 GURPREET ARORA P 1/15/FET/BAE/1/007 JITENDRA SINGH P 1/15/FET/BAE/1/008 SINGH ABHISHEK PRATAP SINGH HEISNAM BOSKY DEVI P 1/15/FET/BCI/1/034 SAHIL BANSAL P 1/16/FET/BME/1/030 ANKIT P 1/16/FET/BME/1/035 PRANKUL P | 17/FET/AU(L)/004 ROHIT GUPTA P A | 17/FET/AU(L)/004 ROHIT GUPTA P A A | 17/FET/AU(L)/004 ROHIT GUPTA P A A P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P P P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A A | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | Titelian Titelian | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P P P P | Titheriau(L)/004 Rohit Gupta P A A P P P A A P P | Titheriau(Ly)004 Rohit Gupta P A A P P P A A P P | Titifetiau(L)/1004 ROHIT GUPTA P A A P P P A A P P | Titheriau(Ly004 Rohit Gupta P A A P P P A A P P | 17/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | Time Time | TI/FET/AU(L)/004 ROHIT GUPTA P A A P P A A P P | TI/FET/AU(L)/004 ROHIT GUPTA P A A P P P A A P P | TIFET/AU(LY004 ROHIT GUPTA P A A P P P A A P P | TIME TABLE TRANSPORT T | THE FLAURING THE | TIMESTAULLY TOTAL TIMES TOTAL TOTAL | TIMESTAULLY004 ROHIT GUPTA P A A P P A A P P | TITIFETTAU(LY0004 ROHIT GUPTA P A A P P P P P P | TIMESTIAULI/1002 ROHIT GUPTA P A A P P P P P P | TIMESTIANULLY TIMESTIANULY TIMESTIANULLY TIMESTIANULLY TIMESTIANULLY TIMESTIANULLY | 17/FET/MULLYDOOL MOHIT GUPTA P A A P P P P A A P P P P P P P P P |

Course Coordintor

Signature



MANAV RACHNA INTERNATIONAL UNIVERSITY FACULTY OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF AUTOMOBILE ENGINERING SUBJECTS NAME: AUTOMOTIVE SAFETY SUBJECT CODE: AU-VA-003

| .NO | ROLL NO | STUDENT NAME | 10.07.2017 | 10.07.2017 | 10.07.2017 | 10.07.2017 | 11.07.2017 | 11.07.2017 | 11.07.2017 | 11.07.2017 | 12.07.2017 | 12.07.2017 | 12.07.2017 | 12.07.2017 | 13.07.2017 | 13.07.2017 | 13.07.2017 | 13.07.2017 | 14.07.2017 | 14.07.2017 | 14.07.2017 | 14.07.2017 | 15.07.2017 | 15.07.2017 | 15.07.2017 | 15.07.2017 | 17.07.2017 | 17.07.2017 | 17.07.2017 | 17.07.2017 | 18.07.2017 | 18.07.2017 | 18.07.2017 | 18.07.2017 | Total | % Attendanc c |
|-----|--------------------|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-------|---------------------|
| | | | | 4 | hrs | | | 4 | hrs | | | 4 | hrs | | | 4 | hrs | | | 4 | lhrs | | | 4h | rs | | | 415 | ırs | | | 4 | ırs | | 32 | |
| 15 | 1/16/FET/BME/1/033 | MANJEET KUMAR | P | A | A | p | P | P | A | A | P | p | P | A | А | p | P | P | P | P | P | P | p | Р | PF | , | Р | P | Р | P | P | A | P | P | 25 | |
| 16 | 1/16/FET/BME/1/034 | AAKASH TIWARI | P | P | P | p | P | P | P | p | P | P | p | P | P | p | P | p | A | A | P | P | P | 0 | p (| , | p | A | A | P | p | P | P | p | 28 | |
| 17 | 1/16/FET/BME/1/035 | PRANKUL VERMA | 2 | A | A | P | P | A | A | P | A | IA | P | P | P | P | Р | Р | P | P | P | P | P | P | P | , | p | Р | P | P | P | P | P | P | 26 | |
| 18 | 1/16/FET/BME/1/036 | LALIT KUMAR | р | P | P | p | P | p | Р | p | P | P | P | P | p | 0 | p. | P | A | A | P | Р | р | Р | p F | 2 | P | A | A | Р | p | P | P | P | 28 | |
| 19 | 1/16/FET/BME/1/037 | MD YASIR SAIFI | p. | p | P | P | Р | P | P | P | p. | P | P | A | A | p | P | P | P | P | P | P | Р | р | P | , | P | P | Р | Р | P | Р | P | Р | 30 | |
| 20 | 1/16/FET/BME/1/038 | AMAN PRASAD | P | A | А | p | p | p | P | P | P | P | P | P | P | p | P | P | A | A | Р | Р | A | A | P | 0 | P | Р | Р | Р | P | P | P | P | 26 | |
| 21 | 1/16/FET/BME/1/039 | AAKASH SISODIA | p | P | P | P | A | A | P | P | A | A | P | p | A | A | P | P | P | Р | P | Р | P | p. | P | , | P | Р | Р | p | P | P | P | P | 26 | |
| 22 | 1/16/FET/BME/1/040 | SHIVAM BHARDWAJ | A | A | P | p | P | P | P | P | P | P | P | P | P | Р | P | P | P | P | P | P | P | P | P | p | P | Р | P | Р | P | P | P | P | 30 | 1 |
| 23 | 1/16/FET/BME/1/080 | Mayank Bhardwaj | p | P | P | A | A | P | Р | P | P | P | P | P | p | Р | Р | P | Р | Р | P | Р | p | P | P | A | A | Р | Р | P | P | Р | P | P | 28 | |
| 24 | 17/FET/M(L)/001 | ANMOL SHARMA | P | A | A | P | P | P | A | A | P | P | P | A | A | P | P | P | P | P | P | P | p | Р | P | p | P | P | P | P | Р | A | P | P | 25 | |
| 25 | 17/FET/M(L)/002 | ARUN BANSAL | P | A | A | P | P | P | A | A | P | P | p | A | A | Р | P | P | P | P | P | P | P | Р | P | P | P | P | P | P | P | A | P | P | 25 | |
| 26 | 17/FET/M(L)/003 | VIKAS KUMAR JHA | P | P | Р | P | P | P | P | A | A | P | P | P | P | P | A | A | P | P | A | A | p | P | P | P | P | Р | P | P | Р | P | P | Р | 26 | |
| 27 | 17/FET/M(L)/004 | MAYANK KHANNA | Р | Р | A | A | P | P | P | P | P | P | P | P | р | P | P | P | P | P | P | Р | P | Р | P | P | Р | A | A | P | P | Р | P | P | 28 | |
| 28 | 17/FET/M(L)/005 | SANTOSH MANDAL | A | A | А | A | Р | P | Р | Р | P | P | Р | P | р | P | Р | P | P | P | Р | Р | P | Р | P | Р | Р | P | Р | Р | А | A | Р | Р | 26 | |
| 29 | 17/FET/M(L)/006 | SHAHROZ KHAN | P | P | P | A | A | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | P | A | A | P | P | P | Р | P | P | P | 28 | 93 |
| 30 | 17/FET/M(L)/007 | SARANSH GUPTA | P | P | A | А | Р | P | Р | P | P | P | P | P | Р | p | P | P | P | P | Р | P | Р | Р | P | Р | P | A | Α | Р | Р | Р | P | Р | 25 | 83 |
| 31 | 17/FET/M(L)/008 | ANURAG SINGH | P | P | A | A | P | P | Р | P | P | P | P | P | P | Р | P | P | P | P | P | P | P | Р | P | Р | P | A | A | P | P | P | P | P | 25 | 83 |
| 32 | 17/FET/M(L)/009 | YOGESH KASHYAP | P | P | P | P | P | P | P | A | A | P | P | P | P | P | A | A | P | P | A | A | P | Р | P I | Р | Р | Ρ. | Р | Р | Р | Р | P | P | 26 | 86 |
| 33 | 17/FET/M(L)/011 | RITANSHU | p | P | A | A | p | P | p | P | P | P | P | P | P | p | p | P | P | P | P | p | P | P | p | p | p | A | А | P | P | P | P | P | 28 | 93 |
| 34 | 1/16/FET/SME/1/031 | JAI PRAKASH | A | A | A | A | P | P | P | P | P | Р | P | P | Р | P | D | P | P | P | P | P | p | Р | p | P | P | P | P | P | A | A | P | Р | 26 | |

Course Coordintor Signature







MANAV RACHNA INTERNATIONAL UNIVERSITY

(Faridabad, Haryana)
(Deemed to be University under section 3 of the UGC act, 1956)
Faculty of Engineering and Technology
Department of Automobile Engineering
Academic Year: 2017-18

| It is to certify that | | Roll No: student |
|----------------------------|-------------------------------|-----------------------------|
| of | | programme of MRIU has |
| successfully completed the | certificate course / value-ad | ded coursetitled"Automotive |
| safety system" course co | de "AU-VA-003" conducte | d by the Department from |
| 10.07.2017 to18.07.2017. | | |
| | | |
| Course Coordinator | Date: 28.07.2017 | Head of Department |



Metric 1.3.2(Q_nm)

Number of value-added courses for imparting transferable and life skills offered during the year

AY 2018-19

| Course Name | Course Code | Duration (Hours) | Number of students enrolled | Number of students passed |
|-----------------------------|-------------|---------------------|-----------------------------------|------------------------------|
| Automotive Safety System | AU-VA-003 | 32 | 45 | 44 |





(Deemed to be University under section 3 of the UGC Act 1956)

Faculty of Engineering and Technology

DEPARTMENT OF AUTOMOBILE ENGINEERING

Value Added Course Details (ODD SEM 2018-19)



Key highlights: Safety Concepts, Safety Equipments, Comfort and Convenience System

Resource person: Mr. Nitin Waghmare

Registration Open from: 13.06.2018
Contact details: Sunny Bhatia, Assistant Professor



Manay Rachna International Institute of Research and Studies

(Deemed to be University under section 3 of the UGC Act 1956)

Faculty of Engineering and Technology Department of Automobile Engineering

SYLLABUS

AUTOMOTIVE SAFETY SYSTEM (Course Code: AU.VA003)

Course: Value Added

Course Coordinator: Nitin Waghmare

Periods/week: 32 hours

Course Outcomes:

- The student will be able to Identify and locate the most important parts of a vehicle.
- The student will be familiar in various systems that enhance vehicle safety, passenger Comfort, recent technologies in automobile field etc.
- The students able to describe the purpose of the fundamental automotive system in a vehicle.
- The students able to analyze the various safety equipments in an automobile vehicle.
- The student able to analyze how the vehicle's structure absorbs impact in a crash.
- · The students able to create and design the comfort system and essential system in a vehicle

Syllabus:

Introduction: Design of the body for safety, energy equation, deceleration of vehicle inside passenger compartment, deceleration on impact with stationary and movable obstacle, safety sandwich construction. Safety Concepts: driving safety, conditional safety, perceptibility safety, exterior safety, interior safety, deformation behavior of vehicle body, speed and acceleration characteristics of passenger compartment on impact. Safety Equipments: regulations, automatic seat belt tightener system, collapsible steering column, tilt able steering wheel, electronic system for activating air bags, bumper design for safety. Collision Warning and Avoidance: Collision warning system, causes of rear end collision, frontal and rear object detection, object detection system with braking system Interactions. Comfort and Convenience System: Steering and mirror adjustment, central locking system, Garage door opening system, tyre pressure control system, rain sensor system.

Reference

 Ronald.K.Jurgen, "Automotive Electronics Handbook", Second Edition, McGraw-Hill Inc., 1999.



Head of the Department Automobile Engineering FET, MRIRS, Faridabad MANAV RACHNA INTERNATIONAL INSTITUTE OF RESEARCH AND STUDIES FACULTY OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF AUTOMOBILE ENGINERING ACADEMIC YEAR (2018-19) ODD SEMESTER SUBJECTS NAME: AUTOMOTIVE SAFETY SYSTEM SUBJECT CODE: AU-VA-003

| no | Rell No | Name | 06.07.2018 | 9107 70 30 | 06.07.2018 | 06.07.2018 | 07.07.2018 | 07.07.2018 | 07.07.2018 | 07.07.2018 | 09.07.2018 | 09,07,2018 | 09.07.2018 | 09.07.2018 | 10.07.2018 | 10.07,2018 | 10.07.2018 | 10.07,2018 | 11.07.2018 | 11,07,2018 | 11.07,2018 | 11.07.2018 | 12.07.2018 | 12.07.2018 | 12.07.2018 | 12.07.2018 | 13.07.2018 | 13.07.2018 | 13.07.2018 | 13.07.2018 | 14.07.2018 | 14.07.2018 | 14.07.2018 | Total Attenda | % Attenda |
|----|--------------------|-----------------------|------------|----------------|------------|------------|------------|------------|------------|------------|----------------|----------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|----------------|------------------|--------------|
| 1 | 1/18/FET/BAU/004 | SACHIN SINGH | I. | I _A | 4 | Ţ., | | | 4 | | | 4 | T | | T | 4 | Т | | | 4 | - | - | -1 | 4 | | Т | T | 4 | _ | | - | 4 | _ | 32 | 2 |
| 2 | 1/18/FET/BAU/005 | CHIRAG D GHUMARE | A | A | P. | p n | P | P | P | р | р | P | 5 1 | 2 1 | E | P | р | p | P | P | р | p | p |) F | A | 1 | p | - 1 | p | - 1 | 1 1 | p | p | 26 | 6 81.2 |
| 3 | 1/18/FET/BAU/006 | KAJAL CHAUHAN | | | 1 | - | P | A | A | Р | p | p | 1 | , p |) P | P | _ p | P | p | p | p | p | _ p | P | p | P | p | - |) p | - | p | P | р | 26 | 6 81.2 |
| 4 | 1/18/FET/BAU/014 | Vyas | 1 | L | P | Р | P | р | p | р | p | P | P I |) P |) P | P | P | p | р | A | A | р | p | P | р | | p | - 1 | p | - / | p | 1 | p_ | 27 | 7 84.3 |
| 5 | 1/18/FET/BAU/016 | SAURABH | P | P | P | P | р | р | p: | р | р | P | p F | P | P | p | p | p | A | A | p | p | p | P | p | P | p | | . 1 | F | р | p | р | 28 | 8 87.50 |
| 6 | I/17/FET/BAU/009 | VATINIMANGUANDA | P | P | P | A | A | р | р | A | A | P | P | p | P | P | A | р | р | р | p | р | ^ | P | р | р | р | - 1 | p | F | р | p | р | 26 | 6 81.2 |
| 7 | 1/17/FET/BAU/010 | YATIN MANCHANDA | P | p | р | р | р | р | р | p | p | 9 | A. 2 | p | P | P | p | p | р | p | p | р | p | р | р | p | P | F | р | E | р | p | p | 30 | 93.75 |
| 8 | 1/17/FET/BAU/011 | ANUJ SHRIVASTAV | A | A | P | р | р | р | A | A | p | 1 0 |) p | p | P | p | p | р | p | р | p | р | р | p | р | р | p | - 1 | р | P | р | р | р | 28 | 8 87.50 |
| 0 | | KULDEEP SINGH RAUTELA | P | р | P | р | р | р | р | p | 2 | 2 1 | 2 | 1 1 | p | p | _ p | p | р | A | р | p | р | p | р | A | p | 1 | p | P | p | р | р | 27 | 7 84.38 |
| 0 | 18/FET/AU(L)/001 | ANSHUL GAUTAM | р | р | р | р | р | A | Λ | p 1 | 2 1 |) F | p p | р | P | p | р | р | p | A | p | р | p | р | p | p | р | E | р | p | р | р | р | 29 | 90.63 |
| 10 | 18/FET/AU(L)/003 | FARHAN MUKHTAR | P | P | р | р | р | р | р | р ј |) | 2 |) P | p | р | A | р | р | p | A | р | A | p | | p | p | A | P | р | p | A | A | р | 25 | 78.13 |
| | | VIVEK BHATIA | A | P | р | р | р | р | A | A 1 |) | P F |) p | p | | р | p | A | р | р | р | р | Р | p | р | р | p | P | р | р | p | р | p | 27 | 84.38 |
| 12 | 1/16/FET/BAU/1/003 | PRATEEK BIST | p | p | A | A | р | р | р | p 1 |) 1 |) p |) A | A | p | p | p | p | р | р | p | p | p | p | p | р | A | A | p | p | p | р | p | 26 | 81.25 |
| | 1/16/FET/BAU/1/011 | AWAISHUDDIN | p | р | р | р | р | р | р | р | 1 | \ p | р | р | р | р | р | р | A | р | p | р | p | р | р | р | A | 1 | P | P | p | p | p | 27 | 84.38 |
| 14 | | JASKARAN SINGH | p | р | p | A | A | A | A. | A J | N | 1 / | V A | A | Δ | A | A | A | A | A | A | p | p | p | р | p | р | р | p | | A | p | p | 13 | 40.63 |
| | 1/16/FET/BAU/1/017 | AKASH YADAV KESHAV | р | A | Α | р | р | A | A | р г | F | p | _ A | A | р | p | р | р | р | р | p | р | A | р | p | p | р | p | p | р | p | p | p | 25 | 78.13 |
| 16 | 17/FET/AU(L)/002 | | A | р | р | р | р | р | р | pE | - 1 | p | p | р | p | A | р | р | A | p | р | р | р | P | A | p | A | p | p | p | p | p | p | 27 | 84.38 |
| 7 | 17/FET/AU(L)/003 | AJAY KUMAR BHIDURI | p | Α | A | р | р | р | р | p p | 1 | 1 / | p | р | p | p | p | p | p | p | p | p | p | p | p | p | A | A | p | p | p | p | р | 26 | |
| 8 | | MOHIT YADAV | р | р | р | р | р | A | A | p p | F | P | p | р | p | р | р | A | р | p | p | A | p | p | A | p | р | p | р | p | A | A | p | 25 | |
| 9 | 1/15/FET/BAU/1/003 | MANDEEP SINGH CHAWLA | р | p | A | A | р | р | р | A p | P | p | | A | р | A | р | р | p | p | p | p | p | р | p | p | A | p | A | p | p | p | D | 24 | |
| 20 | 1/15/FET/BAU/1/006 | NAVAN CHOT | р | р | р | р | A | Λ - | p |) p | . / | p | p | р | р | р | p | р | p | A | p | p | A | p | p | p | р | p | p | p | p | D | l _D | 27 | 11 0000 |
| 1 | 1/15/FET/BAU/1/008 | VIKAS SAINI | р | A | A | р | р | р | p | 1 | P | p | p | p | p | р | p | р | p | р | p | P | р | p | p | p | p | p | D | p | p | A | 0 | 27 | |
| 2 | 1/15/FET/BAU/1/009 | DEEPAK YADAV | р | р | A | A | р | р | p |) p | P | р | p | р | p | р | p | p | p | p | P | p | p | A | p | A | p | D | A | A | 0 | n | 0 | 26 | |
| 3 | 1/15/FET/BAU/1/014 | MOIN KHAN | р | р | р | р | A | A | p | , p | p | p | A | A | р | p | p | A | p | p | A | p | p | p | p | p | p | A | n | n | A | P | n | | |
| 4 | 1/15/FET/BAU/1/019 | VAIBHAV YADAV | р | A | A | р | р | р | p | | A | p | p | p | p | p | p | p | p | p | p | p | p | p | p | p | P | | P | - | - | | - P | 24 | |
| 25 | 16/FET/AU(L)/1002 | GURPREET ARORA | p | р | p | p | р | p | , , | , p | l _D | l _n | | | - | - | | | | 1. | | T | | | | 1 | - | 1 | - | -10 | P | - P | -P- | 28 | |

Course Cordinator



FACULTY OF ENGINEERING AND TECHNOLOGY DEPARTMENT OF AUTOMOBILE ENGINERING

ACADEMIC YEAR (2018-19) ODD SEMESTER SUBJECTS NAME: AUTOMOTIVE SAFETY SYSTEM

| - | | | 1 | | - | | 1 | _ | 1 | | | | | AU-V | | | ISIEN | | | | | | | | - | - | _ | | | | | | | | | | |
|-----|-----------------------|-----------------------------|------------|---|------------|---|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|-----|-------------------------|--------------|
| .no | Roll No | Name | 06.07.2018 | | 06.07.2018 | | 06.07.2018 | 01.07.7018 | 07.07.2018 | 07.07.2018 | 07.07.2018 | 09.07.2018 | 09.07.2018 | 09.07.2018 | 09.07.2018 | 10.07.2018 | 10.07.2018 | 10.07.2018 | 10.07.2018 | 11.07.2018 | 11.07,2018 | 11.07.2018 | 11.07.2018 | 12.07.2018 | 12.07.2018 | 12.07.2018 | 12.07.2018 | 13.07.2018 | 13.07.2018 | 13.07.2018 | 13.07.2018 | 14.07.2018 | 14.07.2018 | 14.07.2018 | .07 | Total Attenda nce | % Attenda |
| | | | | | 4hrs | | | | 4hrs | | | | 4hr | | | | 4h | rs | | | 41: | irs | | | 4hr | rs. | | | 4h | rs | | | 4hr | 18 | | 32 | |
| 26 | 18/FMS/MBA/001 | SHIV SHANKAR SHANKAR PANDEY | A | A | p | p | p | р | p | p | p | p | p | p | | p | р | р | p | p | р | р | р | p | 0 1 | p | A | A | 0 | p | D | A | A | 0 | D | 26 | 1 |
| 27 | 18/FMS/MBA/002 | AMANPREET KAUR | A | A | p | p | p | A | A | p | p | p | , | A | | p | р | р | p | р | р | р | р | p | 0 1 | p | p | р | 0 | p | p r | , | | D | D | 26 | |
| 28 | 18/FMS/MBA/003 | ESHA VERMA | p | p | p | p | р | p | p | p | р | р | p | p | | р | р | р | p | р | р | A | A | p | , | p | 9 | A | p. | p | p J | A | , | A | p | 27 | |
| 29 | 18/FMS/MBA/004 | PABITRA GHIMIRE | р | p | p | p | р | p | р | p | р | p | p | p | | р | р | р | р | р | A | A | p | p | , , | p | , | р | p | A | A | , , | | D | D | 28 | |
| 30 | 18/FMS/MBA/005 | RAKHI SHERAWAT | p | p | p | A | A | p | p | A | A | p | p | p | | р | р | р | A | р | р | р | р | p | A | p | , | р | p | р | p | , , | , | p | p | 26 | |
| 31 | 18/FMS/MBA/006 | KIRAN NEGI | р | p | р | p | р | p | p | p | p | p | | A | | р | р | р | р | p | р | р | p | p | , , | p | , | p | p | p | 0 1 | | , | 0 | D | 30 | |
| 32 | 18/FMS/MBA/007 | SHIVANI UPREJA | A | A | p | p | p | p | A | A | p | p | p | p | | p | р | р | р | р | р | р | p | p | 0 1 | p I | , | p | 0 | p | 0 1 | | | 0 | D | 28 | |
| 33 | 18/FMS/MBA/008 | SHIVAM PANWAR | р | p | p | p | p | p | p | p | р | p | p | A | | A | р | р | p | р | p | A | p | p | , , | p | , | A | 0 | A | 0 1 | | | 0 | D | 27 | |
| 34 | 18/FMS/MBA/009 | MUKUL VERMA | p | p | p | p | p | A | A | p | p | p | p | p | | р | р | p | р | р | р | A | p | p 1 | , , | 0 1 | , | p | 0 | D | 0 1 | | | 0 | D | 29 | |
| 35 | 18/FMS/MBA/010 | SUVENDU NAYAK | р | p | р | p | p | p | p | p | p | p | p | p | | р | р | A | р | p | р | A | p | A | , | A | , | p | A | D | 0 1 | , | A | A | D | 25 | |
| 36 | 16/FCBS/BBA(BANK)/002 | AJAY SHARMA | A | p | p | p | р | p | A | A | p | p | p | р | | р | A | p | p | A | р | р | p | p | , , | , , | , | p | 0 | , | 0 0 | | , | 0 | D. | 27 | |
| 37 | 16/FCBS/BBA(BANK)/003 | AKASH | р | p | A | A | p | p | p | p | p | p | p | A | | A | p | p | р | р | р | p | p | p | , , | 0 1 | , | p | A | A | 0 1 | , , | , , | 0 | D | 26 | |
| 38 | 16/FCBS/BBA(BANK)/004 | AKSHAY GOPALKA | р | p | p | p | p | p | p | p | A | A | p | p | , | p | p | p | р | р | A | р | p | p | , , | , , | , | p | A | A | D D | | , | 0 | n | 27 | |
| 39 | 16/FCBS/BBA(BANK)/005 | AMAN BAKSHI | p | p | p | A | A | A | A | A | A | A | A | | | A | A | A | A | A | A | A | A | p | , , | , , | , | p | , | 0 | 0 | | A | 0 | n | 13 | |
| 40 | 16/FCBS/BBA(BANK)/006 | ESHA GOYAL | р | A | A | p | p | A | A | p | p | р | p | A | | A | p | p | р | р | р | р | p | p / | 1 | 0 | , | D | | 0 | 0 1 | | , | 0 | | 25 | |
| 41 | 16/FCBS/BBA(BANK)/008 | KRITIKA OBEROI | A | p | p | p | p | p | р | p | p | p | p | p | | p | р | A | р | р | A | р | p | , , | , , | 0 | 4 | p | A | D | 0 1 | | | 0 | 0 | 27 | |
| 42 | 16/FCBS/BBA(BANK)/010 | LAKSHYA CHAUDHARY | р | A | A | p | p | p | p | p | p | A | | р | | p | р | p | р | р | р | р | p | , , | , , | , , | , | p | A | A | 0 1 | , , | | 0 | D | 26 | |
| 43 | 16/FCBS/BBA(BANK)/011 | MAHENDRA PRATAP SINGH | p | p | p | p | р | A | A | p | p | p | p | p | | p | р | p | р | A | р | р | p | A | , , | , | 4 | p | , | p | 0 1 | | 4 | A | D | 25 | |
| 44 | 16/FCBS/BBA(BANK)/013 | MILIND BHATIA | р | p | A | A | p | р | p | A | p | p | p | A | | A | р | A | р | р | р | р | p | , , | , , | , , | , | p | A | p | A | , , | , , | 0 | D | 24 | |
| 45 | 16/FCBS/BBA(BANK)/015 | POONAM GOYAL | p | p | p | p | A | A | p | p | p | A | p | p | | 0 | D | D | n | n | n | A | | | | , , | | | | | | | | | | 27 | |

Course Cordinator





(Faridabad, Haryana)
(Deemed to be University under section 3 of the UGC act, 1956)
Faculty of Engineering and Technology
Department of Automobile Engineering
Academic Year: 2018-19

| It is to certify that | | Roll No: | student |
|-------------------------------|---------------------------------|-----------------------|---------------|
| of | | programme | e of MRIU has |
| successfully completed the | ertificate course / value-added | coursetitled"Autor | notive safety |
| system" course code "AU-VA-00 | 3" conducted by the Department | t from 06.07.2018 tol | 4.07.2018. |
| | | | |
| | | | |
| | | | |
| Course Coordinator | Date: 26.07.2018 | Head of D | epartment |



Metric 1.3.2(Q_nm)

Number of value-added courses for imparting transferable and life skills offered during the year

AY 2020-21

| Course Name | Course Code | Duration (Hours) | Number of students enrolled | Number of students passed |
|--------------------------------|----------------|---------------------|-----------------------------|------------------------------------|
| Automotive Safety System | AU-VA-003 | 32 | 24 | 23 |





(Deemed to be University under section 3 of the UGC Act 1956)

Faculty of Engineering and Technology

DEPARTMENT OF AUTOMOBILE ENGINEERING

Value Added Course Details (EVENSEM 2020-21)



Key highlights: Safety Concepts, Safety Equipments, Comfort and Convenience System

Resource person: Mr. Nitin Waghmare

Registration Open from: 01.02.2021

Contact details: Sunny Bhatia, Assistant Professor



Manay Rachna International Institute of Research and Studies

(Deemed to be University under section 3 of the UGC Act 1956)

Faculty of Engineering and Technology

Faculty of Engineering and Technology Department of Automobile Engineering

SYLLABUS

AUTOMOTIVE SAFETY SYSTEM (Course Code: AU.VA003)

Course: Value Added

Course Coordinator: Nitin Waghmare

Periods/week: 32 hours

Course Outcomes:

- The student will be able to Identify and locate the most important parts of a vehicle.
- The student will be familiar in various systems that enhance vehicle safety, passenger Comfort, recent technologies in automobile field etc.
- The students able to describe the purpose of the fundamental automotive system in a vehicle.
- The students able to analyze the various safety equipments in an automobile vehicle.
- The student able to analyze how the vehicle's structure absorbs impact in a crash.
- · The students able to create and design the comfort system and essential system in a vehicle

Syllabus:

Introduction: Design of the body for safety, energy equation, deceleration of vehicle inside passenger compartment, deceleration on impact with stationary and movable obstacle, safety sandwich construction. Safety Concepts: driving safety, conditional safety, perceptibility safety, exterior safety, interior safety, deformation behavior of vehicle body, speed and acceleration characteristics of passenger compartment on impact. Safety Equipments: regulations, automatic seat belt tightener system, collapsible steering column, tilt able steering wheel, electronic system for activating air bags, bumper design for safety. Collision Warning and Avoidance: Collision warning system, causes of rear end collision, frontal and rear object detection, object detection system with braking system Interactions. Comfort and Convenience System: Steering and mirror adjustment, central locking system, Garage door opening system, tyre pressure control system, rain sensor system.

Reference

 Ronald.K.Jurgen, "Automotive Electronics Handbook", Second Edition, McGraw-Hill Inc., 1999.



Head of the Department Automobile Engineering FET, MRIRS, Faridabad

| | | | | | | | | | | Subje | net N | нте | An | tions | sive | Safe | ty Sy | pley | n [/ | E VA | 003 | (PI | 7) | | | | | | | | | | | | | | | |
|--|--------------------|--------------------------|-------------------------------------|----------------|---|-----|-----|------|------|-------|-------|-----|----|-----------|------------|------|-------|------|------|------|-----|-----|------|-----|-----|-----|-----|---|-----|-----|----|----|-----|-----------|----|--------------------|----------------|-------------|
| Sr No. School | Roll No | Studen Name | t Class | 20 02 21 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | IS- 15- 05- 05- | | tal |
| MRHRS- Faculty of Engineer and Technolo | mg 1/18/FET/BCS/0 | 05 Shrey Bhagat | B.Tech. CSE - [Se 6] | m E | | | | 0 | | | | | | | | | | | | | | | | | T | 1 | | | | | | | | | | | (2) | 6/3 5-67 |
| MRIRS- Faculty of Engineers and Technologi | ing 1/18/FET/BCS/0 | Aman Kumar Rajput | B.Tech. CSE - [Se 6] | m [6 | | D | | | 5 0 | 0 | 0 | 0 0 | 20 | D | | 0 0 | 0 | 0 | 0 | 2 6 | D | 0 | 0 | 3 6 | 0 | | | | Ť | Ī | | T | T | T | | T | (2) | 6/3 |
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| MRIIRS- Faculty of Engineers and Technolog | ng 1/18/FET/BCS/0 | AYUSH GARG | 8.Tech. CSE - (Se: 6) | m [2 | 0 | | 0 | 0 0 | | | 0 | 9 6 | 0 | | a 1 | 2 0 | 0 | | 0 | 10 | 0 | 0 | 0 0 | 3 6 | 0 | 0 | | 2 | | i | | Ť | Ī | П | Ť | | (26 | 6/3 |
| MRIIRS- Faculty of Engineers and Technolog | 1/19/FET/BCS/0: | 2 Karan | 8.Tech. CSE - [Ser 6] | m [2 | | 0 | 0 | 9 6 | 10 | 0 | 0 | | 0 | 0 | 0 | 20 | | | 0 | | 0 | 0 | 2 6 | 10 | 0 | | 0 | 2 | Ī | | T | Ť | T | П | Ť | T | (24 | 6/30 -57 |
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| MRIRS- Faculty of Engineers and Technolog | | Taren Sharma | B.Tech. Mechanic - [Sem 6] | al 🗾 | | 0 | 01 | 2 0 | 0 | 0 | 0 | 2 6 | 0 | 01 | 3 6 | 0 | 0 | 0 | 0 0 | 0 | 0 | 01 | 3 6 | 0 | 0 | 0 | 0 | 2 | | | 1 | T | Ī | | T | Ī | (30 | 0/20 |
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| Technology MRIRS- Faculty of Engineering and | 1/18/FET/BME/04 | Adarsh Choudhar | B.Tech. Mechanica 7 - [Sem 6] | | | 0 | 3 6 | 10 | 0 | | 0 0 | 0 | | 0 6 | 1 6 | 0 | 0 | 2 6 | 20 | | | 20 | | | | 0 6 | 10 | | | 1 | t | T | | 1 | T | | (30) | (30) |
| and | 20/FET/M(L)/001 | Sevin P Venu | B.Tech. Mechanics - [Sem 4] | | | 0 1 | 3 6 | 10 | 0 | | 0 0 | 0 | | 0 6 | 10 | | 0 | 2 6 | 10 | 0 | | 2 0 | 0 | | | 0 6 | 10 | | | 1 | 1 | T | | | t | T | (27/ | 30) |
| MRIIRS- Faculty of Engineering and | 20/FET/M(L)/005 | Duvesh Kamar | B.Tech. Mechanical - [Sem 4] | 2 | | | 2 6 | 10 | 0 | | 2 6 | 0 | | | 0 | 0 | | 2 6 | 0 | 0 | 0 | 2 0 | 0 | | 0 | | | | | 1 | T | T | | \dagger | + | | (24/ | 30) |
| and | 20/FET/M(L)/006 | Surse Kumar | B.Tech. Mechanical - [Sem 4] | 0 | | | 1 6 | 0 | 2 | 0 | 1 | 0 | | 2 6 | | | | | 0 | | 0 | 20 | | | 0 | 2 6 | 10 | | | | T | H | | 1 | t | | (26/: | |
| Technology MRHRS- Faculty of Engineering and | 20/FET/M(L)/007 | AMIT RANJAN JHA | 8.Tech. Mechanical • [Sem 4] | | | | | | | | 2 12 | 0 | | 2 6 | 0 | 0 | 0 | 2 6 | 0 | | 0 1 | 20 | | 0 | 01 | 2 0 | | | | | | | 1 | + | T | T | (25/0 | |
| and | 20/FET/M(L)/003 | Paras Wadhwa | B.Tech. Mechanical - [Sam 4] | | | 3 6 | 10 | 0 | 0 | 0 | 20 | D | 01 | 2 6 | 0 | | | 2 0 | 0 | | | 2 0 | | | | 10 | | | | | + | H | + | | | | (27/3 | 10) |
| MRIES- Faculty of Management Studies | 20/FMS/MBA/002 | NISHA TADAV | MBA - [Sem 2] | | | 1 | T | | | 1 | 1 | | E | | | 01 | 0 6 | | 0 | | 2 6 | 0 | | 0 | 0 0 | 10 | | | 0 | 2 6 | 10 | | | | 10 | | (28/3 | 10) |
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| Management Studies MRIRS- | 20/FMS/MEA/003 | SHARMA | MBA- [Sem 2] | - | - | | - | | + | + | - | | + | + | | + | + | + | | - | - | - | H | - | + | - | | | - | - | - | | | - | | | (24/3 | - |
| Management | 20/FMS/MBA/031 | AKSHITA | [Sem 2] | | | | | | | | | | E | | | | 2 | | | | 1 | | | | 3 6 | | | Δ | e e | 1 | | | 3 5 | 10 | | 00 | (26) | 2 |



(Faridabad, Haryana)
(Deemed to be University under section 3 of the UGC act, 1956)
Faculty of Engineering and Technology
Department of Automobile Engineering
Academic Year: 2020-21

| It is to certify that | | Roll No: student |
|--------------------------------|----------------------------------|------------------------------------|
| of | | programme of MRIIRS |
| has successfully completed the | certificate course / value-added | d course titled "Automotive safety |
| System" course code "AU-VA-0 | 03" conducted by the Departme | ent from 20.02.2021 to 15.05.2021. |
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| Course Coordinator | Date: 03.06.2021 | Head of Department |