ASSOCIATION OF AUTOMOBILE ENGINEERS

SVCE | Sri Venkateswara College of Engineering

SAE COLLEGIATE CLUB OF SVCE

# DEPARTMENT OF AUTOMOBILE ENGINEERING

## PROGRAMS

**B.E. AUTOMOBILE ENGINEERING**

**B.E. MECHANICAL ENGINEERING (AUTOMOBILE)**

# AutoXploR

FEBRUARY'25,
VOLUME 4, ISSUE 8


SRI VENKATESWARA COLLEGE OF ENGINEERING
विद्या परा देवता

CONNECT @

# CONTENTS

# EDITORIAL BOARD

## Editors

Dr. J. Venkatesan
Professor & HoD

Mr. R. Sakthivel
Assistant Professor

Dr. K. Paul Durai
Assistant Professor

## Students

Mr. M.R. Kaleeswaran
IV Year AUT

Mr. V. Shivabaalaj
III Year AUT

# DEPARTMENT VISION & MISSION

## Vision


To be recognized as a distinguished department renowned for producing competent and responsible mechanical engineers specialized in automobile engineering, meeting the dynamic demands of automotive industries on national and global scale, nurtured by exceptional facilities and support.

## Mission

- Igniting the passion of individuals for learning, research, and innovation by establishing collaborative learning through dynamic teaching methodologies, hands-on experiences, and research opportunities, to contribute in the advancement of automotive technologies.
- Advancing the competency of individuals through comprehensive academic curriculum, state-of-the-art-laboratory facilities, and training on critical thinking skills to comprehend industry requirements and provide innovative solutions in the automotive and associated domains.
- Providing engineering and technological solutions for challenges such as sustainability, safety, and efficient transportation at national and global levels, through interdisciplinary collaboration, and cutting-edge research in collaboration with industry partners, government agencies, and academic institutions.

# INDUSTRY COLLABORATION

**Dr. K. Paul Durai, Assistant Professor/AUT and Mr. A. Kumaraswamy. Assistant Professor/MEC visited Sundram Fasteners Limited, Mahindra World City, and had a fruitful discussion with Mr. V. Viswanthan, General Manager, HR, Sundram Fasterners Limited, regarding the "Semester-in-Industry Programme" planned for the VI semester students of B.E. Automobile Engineering, B.E. Mechanical Engineering and B.E. Mechanical and Automation Engineering.**

**The meeting was held on February 01, 2024 at Sundram Fasteners Limited and both faculty members have attended the induction program for the students enrolled in the Semester-in-Industry programme. The industry experts highly appreciated the efforts taken by SVCE for the programme.**


# INDUSTRY COLLABORATION

## Semester-in-Industry Programme

**Mr. Arya B G, Mr. Gowtham P G, Mr. Kavi Raj E, Mr. Naveen V, Mr. Shivabaalaji V, and Mr. Mukesh S,** **III Year Automobile Engineering students, have been shortlisted for the Semester in Industry program based on their academic performance and are attending their internhip at Sundram Fasteners Limited from February 1, 2025.**

# PROGRAM ORGANIZED

**Dr. J. Venkatesan, Professor & Head and Dr. V. Ganesh, Associate Professor, delivered a session to aspiring school students on the facilities available in the Department of Automobile Engineering and the scope of the course in future mobility on February 12, 2025 and February 27, 2025 respectively.**

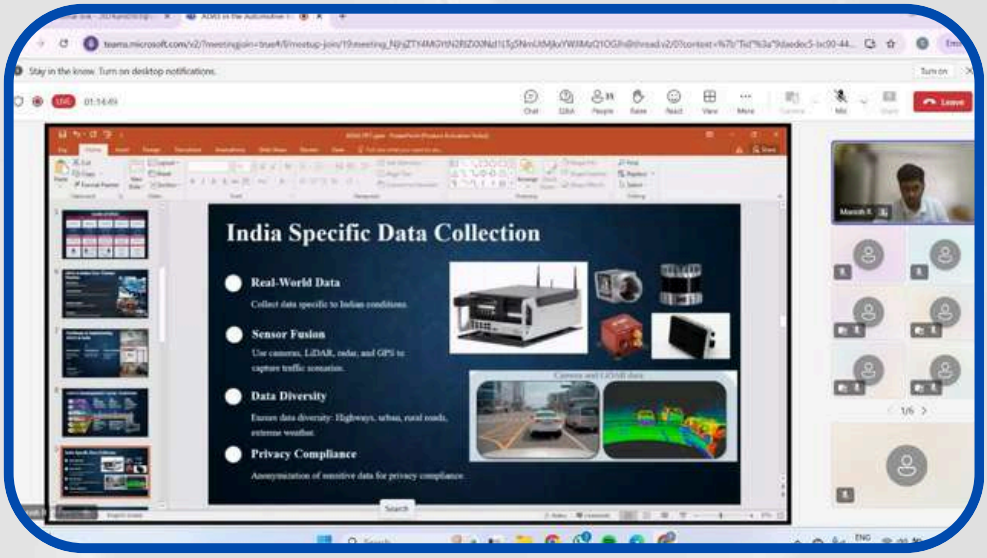
**These sessions were part of the SVCE Experience Program organized by Sri Venkateswara College of Engineering, providing valuable insights into the evolving landscape of the automotive industry.**

# PROGRAM ORGANIZED

**The Department of Automobile Engineering, organized a Guest Lecture on "Driving the Future: Essential Adaptive Skills for Automotive Engineers" by Mr. Ashwin Badri, Alumnus (2000-04), Founder & CEO of Vaahanstack Parking Solutions Private Ltd, on February 4, 2025 in the Automobile Students' Classroom.**


# PROGRAM ORGANIZED

**The Department of Automobile Engineering in collaboration with TechNovuus, powered by Automotive Research Association of India (ARAI) successfully hosted an engaging Guest Lecture Session on "ADAS in the Automotive Industry: Challenges in Sensor Fusion and AI Implementation" by Mr. MANISH R, Project Research Engineer, Technology Group (TG), ARAI & Alumnus (Batch 2018-22) on February 08, 2025, at 10:00 AM (Online).**

# PROGRAM ORGANIZED

**The Association of Automobile Engineers (AAE), Department of Automobile Engineering, has organized "TRAXION 2K25" - a National Level Technical Symposium held on February 20, 2025 in the Video Hall.**

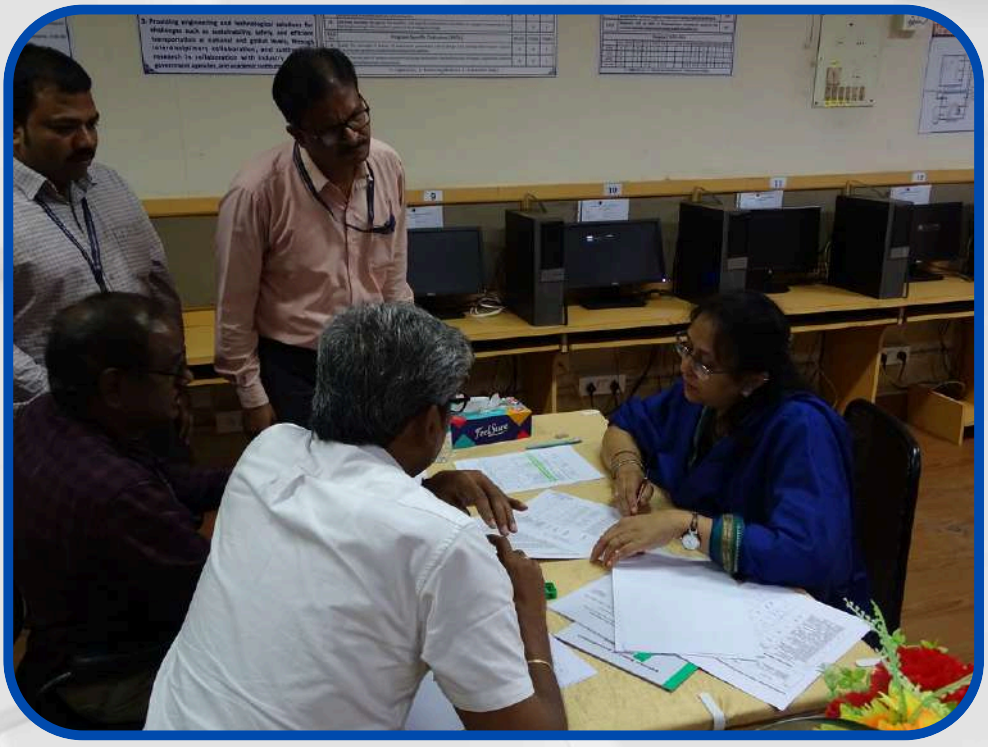
**Mr. Avinash Gopichand, an esteemed alumnus (1999–2003 Batch, B.E. Automobile Engineering) and Director, Viract, inaugurated the event and delivered the inaugural address on "Auto Engineers' Code: Navigating an Uncertain World". The event featured technical sessions, competitions, and workshops, fostering innovation and industry insights.**


# PROGRAM ORGANIZED

**Doosan Bobcat India Pvt. Ltd. sponsored a vehicle and conducted a live demonstration at the Auto Expo, TRAXION 2K25, held on February 20, 2025, organized by the Association of Automobile Engineers, SVCE. Their support provided students with hands-on exposure to heavy machinery technology, enhancing their learning experience.**

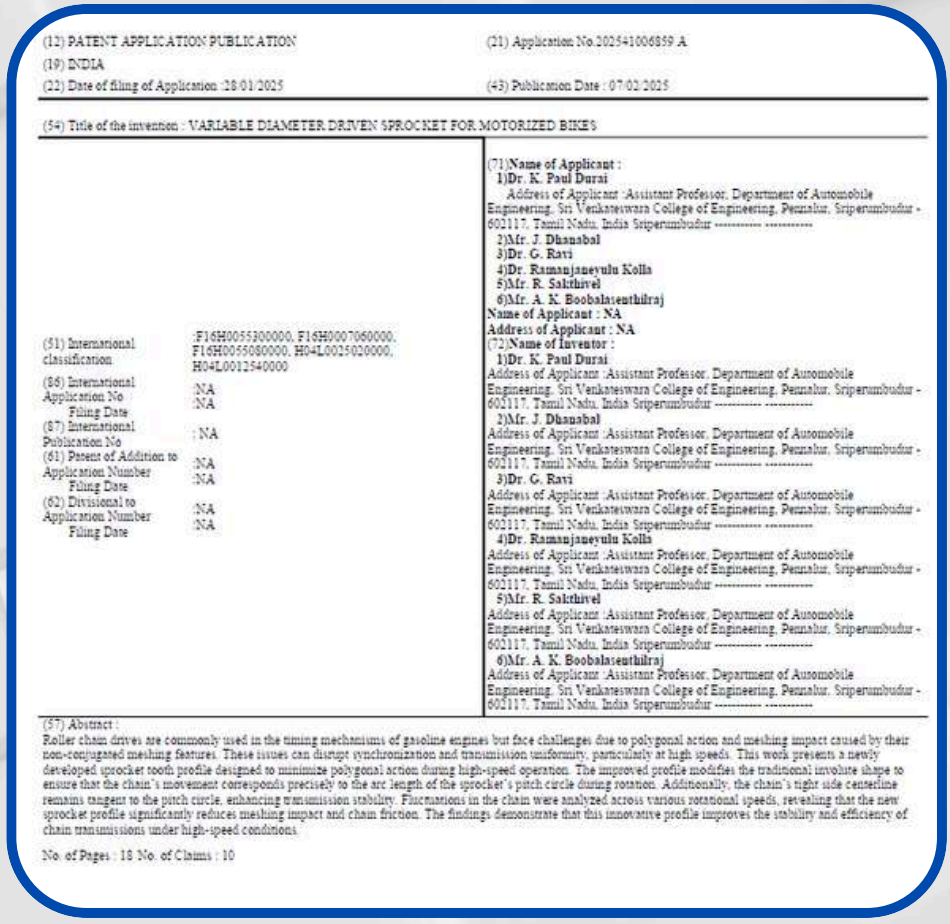
# PROGRAM ORGANIZED

**The NBA Expert Committee visited the Department of Automobile Engineering on February 28, 2025, and March 1, 2025, to review the NBA compliance report. After a detailed evaluation, the committee provided positive feedback, acknowledging the department's commitment to academic excellence and continuous improvement.**



# FACULTY CONTRIBUTIONS

**Dr. K. Paul Durai, Mr. J. Dhanabal, Dr. G. Ravi, Dr. Ramanjaneyulu Kolla, Mr. R. Sakthivel, and Mr. A. K. Boobalasenthilraj, Assistant professors have successfully published an Indian Utility Patent titled VARIABLE DIAMETER DRIVEN SPROCKET FOR MOTORIZED BIKES on February 07, 2025.**



(12) PATENT APPLICATION PUBLICATION
(19) INDIA
(22) Date of filing of Application :28/01/2025

(21) Application No.202541006859 A
(43) Publication Date : 07/02/2025

(54) Title of the invention : VARIABLE DIAMETER DRIVEN SPROCKET FOR MOTORIZED BIKES

(51) International classification :F16H0055300000, F16H0007060000, F16H0055080000, H04L0025020000, H04L0012540000
(86) International Application No :NA
Filing Date :NA
(87) International Publication No : NA
(61) Parent of Addition to Application Number :NA
Filing Date :NA
(62) Divisional to Application Number :NA
Filing Date :NA

(71)Name of Applicant :
1)Dr. K. Paul Durai
Address of Applicant :Assistant Professor, Department of Automobile Engineering, Sri Venkateswara College of Engineering, Pennalur, Sriperumbudur - 602117, Tamil Nadu, India Sriperumbudur ---------- ----------
2)Mr. J. Dhanabal
3)Dr. G. Ravi
4)Dr. Ramanjaneyulu Kolla
5)Mr. R. Sakthivel
6)Mr. A. K. Boobalasenthilraj
Name of Applicant : NA
Address of Applicant : NA
(72)Name of Inventor :
1)Dr. K. Paul Durai
Address of Applicant :Assistant Professor, Department of Automobile Engineering, Sri Venkateswara College of Engineering, Pennalur, Sriperumbudur - 602117, Tamil Nadu, India Sriperumbudur ---------- ----------
2)Mr. J. Dhanabal
Address of Applicant :Assistant Professor, Department of Automobile Engineering, Sri Venkateswara College of Engineering, Pennalur, Sriperumbudur - 602117, Tamil Nadu, India Sriperumbudur ---------- ----------
3)Dr. G. Ravi
Address of Applicant :Assistant Professor, Department of Automobile Engineering, Sri Venkateswara College of Engineering, Pennalur, Sriperumbudur - 602117, Tamil Nadu, India Sriperumbudur ---------- ----------
4)Dr. Ramanjaneyulu Kolla
Address of Applicant :Assistant Professor, Department of Automobile Engineering, Sri Venkateswara College of Engineering, Pennalur, Sriperumbudur - 602117, Tamil Nadu, India Sriperumbudur ---------- ----------
5)Mr. R. Sakthivel
Address of Applicant :Assistant Professor, Department of Automobile Engineering, Sri Venkateswara College of Engineering, Pennalur, Sriperumbudur - 602117, Tamil Nadu, India Sriperumbudur ---------- ----------
6)Mr. A. K. Boobalasenthilraj
Address of Applicant :Assistant Professor, Department of Automobile Engineering, Sri Venkateswara College of Engineering, Pennalur, Sriperumbudur - 602117, Tamil Nadu, India Sriperumbudur ---------- ----------

(57) Abstract :
Roller chain drives are commonly used in the timing mechanisms of gasoline engines but face challenges due to polygonal action and meshing impact caused by their non-conjugated meshing features. These issues can disrupt synchronization and transmission uniformity, particularly at high speeds. This work presents a newly developed sprocket tooth profile designed to minimize polygonal action during high-speed operation. The improved profile modifies the traditional involute shape to ensure that the chain's movement corresponds precisely to the arc length of the sprocket's pitch circle during rotation. Additionally, the chain's tight side centerline remains tangent to the pitch circle, enhancing transmission stability. Fluctuations in the chain were analyzed across various rotational speeds, revealing that the new sprocket profile significantly reduces meshing impact and chain friction. The findings demonstrate that this innovative profile improves the stability and efficiency of chain transmissions under high-speed conditions.

No. of Pages : 18 No. of Claims : 10

# FACULTY CONTRIBUTIONS

**Dr. V. Ganesh, Associate Professor, served as a Jury Member for iCUBE, a National-Level Intercollegiate Technical Event organized by the SVCE Science Club at Sri Venkateswara College of Engineering on February 7 & 8, 2025. His expertise contributed to evaluate innovative projects and inspiring participants in their technical pursuits.**

# RESEARCH CONTRIBUTION

## BIS - R & D Funded Projects

**The BIS Project Team members visited the Global Automotive Research Centre (GARC) on 24.02.2025 and toured its Environmental Testing Lab. They interacted with Mr. S. Nagarajan, Manager of the Certification Lab at GARC, who explained the wiper system testing process according to IS15802. He also provided insights into key Indian testing and certification agencies, including ARAI, CLRT, ICAT, NATRAX, and farm machinery institutes.**

# STUDENTS PARTICIPATION

- **Harish. T (I Year), Automobile Engineering student attended a workshop in Chennai institute of technology on the topic Cyber security which held on February 5, 2025.**

- **Prathipa C, Arya B G (III Year), Balaguru V, S Puneeth Vignesh, Harish S (II Year), Deepak Karthik K, Harish T, Kalaivani S, Jeevananadam S, Manish P, and Mukund V (I Year) students from the Department of Automobile Engineering attended the PALS Special Lecture on 'Research and Development Process in Automotive Tyres' online on February 21, 2025, from 10:30 AM to 12:30 PM.**

# PROGRAM OUTCOMES (POs)

Students in the Automobile Engineering program should, at the time of their graduation, be able to

1. Apply the knowledge of mathematics, science, engineering fundamentals and concepts of Civil Engineering to the solution of complex engineering problems. **(Engineering knowledge)**
2. Identify, formulate, review research literature, and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences. **(Problem analysis)**
3. Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. **(Design/Development of Solutions)**
4. Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions for complex problems. **(Conduct Investigations of Complex Problems)**
5. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. **(Modern Tool Usage)**
6. Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. **(The Engineer and Society)**
7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. **(Environment and Sustainability)**
8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. **(Ethics)**
9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. **(Individual and Team Work)**
10. Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. **(Communication)**
11. Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. **(Project Management and Finance)**
12. Recognize the need for, and have the preparation and ability to engage in independent and lifelong learning in the broadest context of technological change. **(Life-long Learning)**

# PROGRAM SPECIFIC OUTCOMES (PSOs)

Students in the Automobile Engineering program should, at the time of their graduation, be able to

- **PSO1: Design, analyze, and optimize automotive systems and components using principles of mechanical engineering and specialized knowledge in automobile engineering.**
- **PSO2: Integrate advanced technologies into automotive systems, including electric and hybrid powertrain, autonomous driving systems, vehicle-to-vehicle communication, and advanced driver assistance systems.**
- **PSO3: Plan, conduct, and interpret tests and experiments to validate the performance, reliability, and safety of automotive systems and components.**

# PROGRAM EDUCATIONAL OBJECTIVES (PEOs)

Automobile Engineering graduates during the first few years of graduation will:

- **PEO1: Graduates will have acquired a strong foundation in mechanical engineering principles and specialized knowledge in automobile engineering, adapted to technological advancements leading to successful careers in the automotive and manufacturing industries.**
- **PEO2: Graduates will showcase the ability for innovation and flexibility in embracing technological progress and evolving industry dynamics, fostering a commitment to ongoing learning, culminating further academic pursuits and research endeavors.**
- **PEO3: Graduates will understand the ethical, social, and environmental implications and adhere to the principles of ethical conduct, sustainability, and corporate responsibility to become responsible professionals and successful entrepreneurs.**

# PROGRAMS

- **B.E. Automobile Engineering**
- **B.E. Mechanical Engineering (Automobile)**

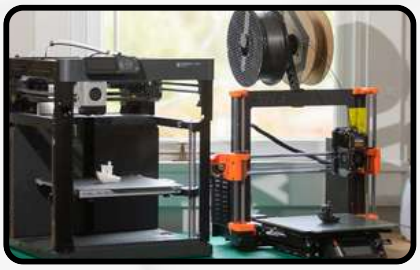
SVCE | Sri Venkateswara College of Engineering

# DEPARTMENT OF AUTOMOBILE ENGINEERING

## B.E. MECHANICAL ENGINEERING (AUTOMOBILE)

**(With a special focus on hybrid and electric vehicles)**

## EARN DEGREE WITH MUTILPLE CAREER OPPORTUNITIES




### Why Mechanical Engineering (Automobile) at SVCE?

- **First College** in **Tamil Nadu** to Introduce this program from the **Academic Year 2024-25**
- The College is an **ISO certified** institution and is accredited by **National Assessment and Accreditation Council (NAAC) with A+ Grade**
- Students can explore **multiple career opportunities** in leading mechanical and automobile industries in India and Abroad
- Special focus on **Hybrid & Electric Vehicles**
- **Semester-in-Abroad** programme in third year
- Exposure to real-world challenges and practices through **Semester-in-Industry** programme
- Earn **Honours / Minor degree** along with basic degree
- Guidance for 100 % placement
- **Full fee waiver** for Government School students under WINGS and SEEDS scholarship schemes
- **Management scholarships** on the basis of Merit Means, Merit-cum-Means, Economic Means, Performance in Sports and Performance in NCC activities

### Honours and Minor Degree

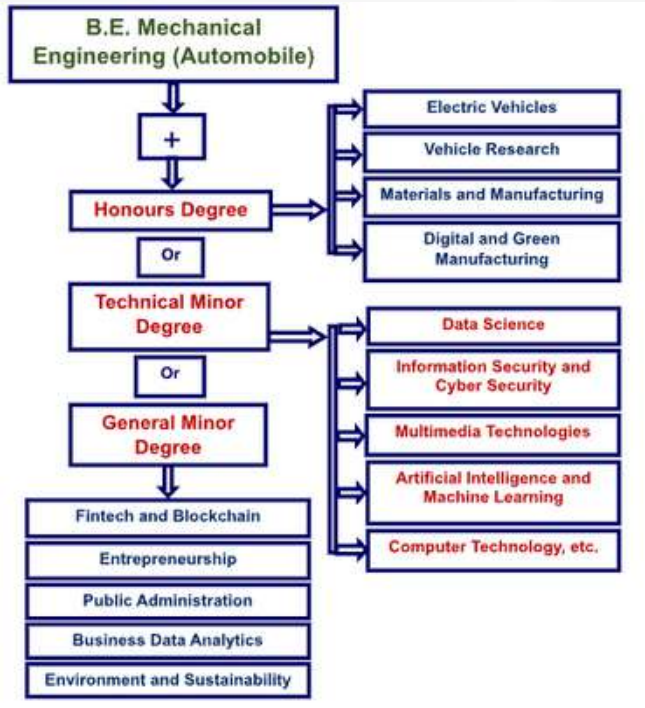
- In addition to the basic degree B.E. Mechanical Engineering (Automobile), the students can get an additional Honours Degree or Minor Degree by earning additional credits.

### Placement

An average of more than **95%** eligible students of Automobile Engineering got placed in reputed core and other companies

### Higher Studies

- Students are provided with **supportive training** pertaining to their future plans for doing a master's.
- Students pursue their master's in the field of Engineering and Technology and also in Business Administration and Management in reputed Universities worldwide including Clemson University-USA, Wisconsin Madisson University-USA, RWTH Aachen University-Germany, Inglostadt University-Germany, University of Sheffield-UK, Oxford Brookes University-UK, etc.




**APPLY NOW**

CONNECT @