HUMAN FACTORS IN TRAFFIC COLLISIONS

1. **NQF LEVEL – 9**

2. **COURSE CREDITS – 15**

3. **COURSE DATES:** 29 SEPTEMBER – 03 OCTOBER 2014

4. **COURSE OBJECTIVES**

The course examines the human factors involved in traffic collisions to improve the understanding of the causes, types and solutions to traffic collisions. The course will examine physiological and psychological aspects of the human road user that influence behavior and will look in detail at driver capability, the tasks required of drivers and pedestrians in specific road environments; how road users adjust and compensate to their physical environment and what specific vulnerabilities they exhibit. The course concludes with an examination of engineering, educational and enforcement approaches that may address some of the vulnerabilities that have been uncovered.

5. **OUTCOMES**

The attendee will emerge from the course conversant with the human elements of road safety and with an improved understanding of the principles of safe roads and how these can be achieved in practice. They will develop a good working knowledge of the subject area, an enhanced sensitivity to the complexity of collision causation and the confidence to apply this knowledge in the workplace.

6. **COURSE LECTURERS:**

- Prof Ralf Risser, Lecturer both at University and Technical University of Vienna and visiting lecturer at the University of Lund, Department of Technology and Society, dealing with Human factors in traffic and mobility
- Dr Christine Chaloupka-Risser, Lecturer of traffic psychology at the Technical University of Graz.
- Prof Marion Sinclair, Lecturer in Transportation Engineering and Road Safety, Stellenbosch University.

7. **COURSE OUTLINE:**

**MONDAY 29 Sept**

**Session 1: International overview of injury data**
- What data reveals about injury risk
- Shortcomings of collision data recording
- Human tolerance to injury
- Injury as a public health issue
- Systems approach

**Session 2: Driver Behaviour models**

**Session 3: Defining human factors**
- Developing a typology of factors that restrict performance (Factors that limit potential; reduce capability and influence risk taking)

**TUESDAY 30 Sept**

**Session 4. Biological basis of driver limitation**
- Driver attention, limitations of information processing
- Visual problems and visual search issues
- Perception – reaction time
- Expectation and misunderstandings

**Session 5. Driver capability**
- Factors that reduce capability on a long term basis (inexperience, ageing, disease and disability, alcoholism, drug abuse, training);
- Factors that reduce capability on short-term basis (fatigue, intoxication (alcohol or drugs), psychological stress, temporary distraction)
- Alcohol as a factor in South African traffic injuries

**WEDNESDAY 1st October**

**Session 6. Risk taking**
- Factors that promote risk taking behaviour with long-term impact
- Factors that promote risk taking on short term basis
- How drivers adapt to countermeasures
- Behavioural compensation
- Speed and time
- Speed and safety

**THURSDAY 2nd October**

**Session 7. Pedestrian behaviour in SA context**
- Context of pedestrian injuries
- Observations around patterns of pedestrian movement
- Pedestrian risk taking
- Communication between drivers and pedestrians

**Session 8. Driver tasks**
- On highways – straight
- At interchanges: sign reading; gap search and lane changing, deceleration, acceleration;
- On urban roads: other road users
- At intersections: detecting the intersection, identification of signalization, paths, right of way, gap judgment, decision making in the dilemma zone
- Corridor design and driver error: inattention, drowsiness, response to loss of directional control
- Driver behaviour on curves

**FRIDAY 3rd October**

**Session 9. An engineering response to human factors**
- Summary of driver weakness and how that influences environmental design
- Speed and safety, traffic calming
- Self-explaining roads
- Forgiving roads
- Safety effects of single and multiple treatments
- Case studies
- Vehicle engineering advancements.

**Session 10. Other responses**
- Educational opportunities and restrictions
- Role of enforcement
- Traffic safety marketing
- Mobility management